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THE SURGICAL TREATMENT OF CANCER OF THE STOMACH.

WITH REPORT OF ONE HUNDRED GASTRIC RESECTIONS.

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In the history of medicine we have no recorded example of a cancer of the stomach cured by medical means. Yet, for some reason or reasons, such cases are sent to the medical men, are entered in the medical wards of hospitals and subjected to treatment which must result in 100 per cent. mortality.

So true is this that, while suspected cases of cancer of the breast, the uterus or the rectum are at once sent to the surgical side from the out-patient department, the possible victim of cancer of the stomach, even with a suspicion amounting almost to a certainty, is still sent to the medical ward.

Yet, of all diseases, cancer of the stomach is most surgical. External carcinomas may be treated by plasters, badly, it is true, but occasionally with success. Superficial epithelial growths sometimes disappear, at least for a time, under the *x*-ray. But gastric carcinoma has not even the small chance of relief which may be afforded by these very uncertain agents.

Appendicitis is now universally conceded to be a surgical disease, yet some cases of appendicitis are known to recover spontaneously and to remain cured. Extrauterine pregnancy may result in a pelvic hematocele, with spontaneous absorption. But cancer of the stomach has no such possibility. These examples are adduced merely to show the inconsistency of looking for a medical side to this question. It is worse than blunder; it is crime.

Fig. 1.—Showing cancer of pyloric end of stomach, with enlarged glands, and the four blood vessels tied, and line of gastric secretion. A: Left Gastro-epiploica ligated. B: Gastric artery ligated. C: Superior pyloric ligated. D: Gastro-duodenalis ligated.

The practitioner of medicine is not to blame for this state of affairs. He has retained these cases because the surgeon has shown little or no disposition to relieve him of them. There is no controversy, and no one is more anxious to turn these unfortunate victims of a medically incurable disease to the operator than the internist.

Cancer of the stomach is the most frequent form found in the human body and can conservatively be estimated at 30 per cent. of the total. Why has the medical profession been so slow to apply surgical methods to the cure of this common malady? The reasons are two: First, the frightful mortality of the earlier operations which discouraged the patient, the physician

and the surgeon. Second, the difficulties and uncertainties of establishing an early diagnosis.

REVIEW OF SURGICAL TREATMENT.

The radical removal of cancer of the stomach was first performed by Pean in 1879, by Rydygier in the year following, and Billroth in 1881, but his was the first patient who recovered. Pean and Rydygier did not realize the importance of the subject, and it remained for the master mind of Billroth not only to see its possibilities, but to establish the principles of operative relief. These remain to-day much as he left them, the changes being in technic rather than in new discoveries. Almost

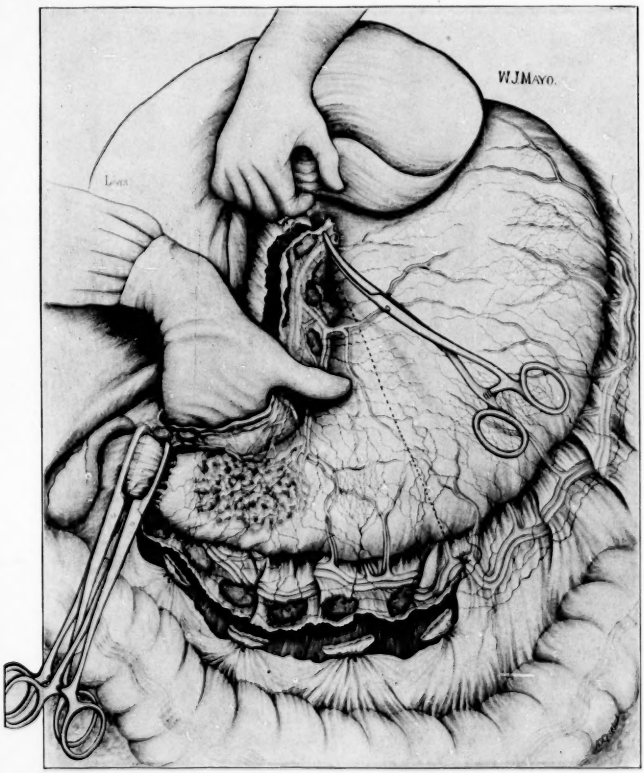

Fig. 2.—Showing duodenum clamped and pyloric end of stomach separated, ready for resection.

equaling Billroth in the importance of his early contributions to the operative treatment of gastric carcinoma stands the name of Kocher, and in selected cases the Kocher operation is the method of choice not only in the hands of its distinguished originator, but of practical surgeons the world over.

The death rate among these early operations was appalling. The average mortality of Billroth at the time of his death was over 60 per cent. Haberkant, in 1896, collected 257 pylorectomies, with a mortality of 64.4 per cent. before 1887 and 42.8 per cent. after that time. Mr. Goffe showed that the operative mortality among the English and American surgeons was 76 per cent. before 1890 and 28.5 per cent. after that time. Guinard collated 291 cases between 1891 and 1898, with a death rate of 35.3 per cent.

The lack of enthusiasm of all parties concerned is not to be wondered at, but there has been steady progress, and since 1900 the improvement in operative technic has been so great that the mortality has become reduced to a remarkable degree.

The workers in this field have been comparatively few and the work has been so quietly carried on that the profession does not realize the enormous strides that have been taken. To-day the mortality in the hands of men of experience in the operable cases is probably not above 10 per cent. and in suitable cases nearer 5 per cent. Operations undertaken with the patient in extreme condition from starvation and hemorrhage will continue to show a large death rate.

But these disasters should no more militate against the operation in suitable cases than general suppurative peritonitis should stand in the way of early operation

for appendicitis. Rather should it lead us to an increased effort to secure the patients during the curable period.

The stomach is a most favorable organ from an operative point of view. It has an abundant blood supply from four sources and the certainty of early wound healing makes plastic surgery safe. The immediate ligation of these four vessels makes radical operation bloodless and devoid of shock exactly as in the case in abdominal hysterectomy. By the use of clamps the entire area can be cleanly excised practically without opening the gastric cavity (Figs. 1 and 2).

the abdomen, at which times only an anesthetic will be urgently demanded. In poor subjects the entire visceral part of the operation can be done without pain and without anesthesia. The preliminary administration of morphia hypodermatically in the latter class of cases is a valuable adjunct to the anesthesia.

We have done the Billroth No. 2, that is, the complete closure (Fig. 5), of both duodenal and gastric stumps and independent gastrojejunostomy, 76 times, and the Kocher operation 15 times (Fig. 4), and the Billroth No. 1 nine times. Each has its own field of usefulness in selected cases. For the

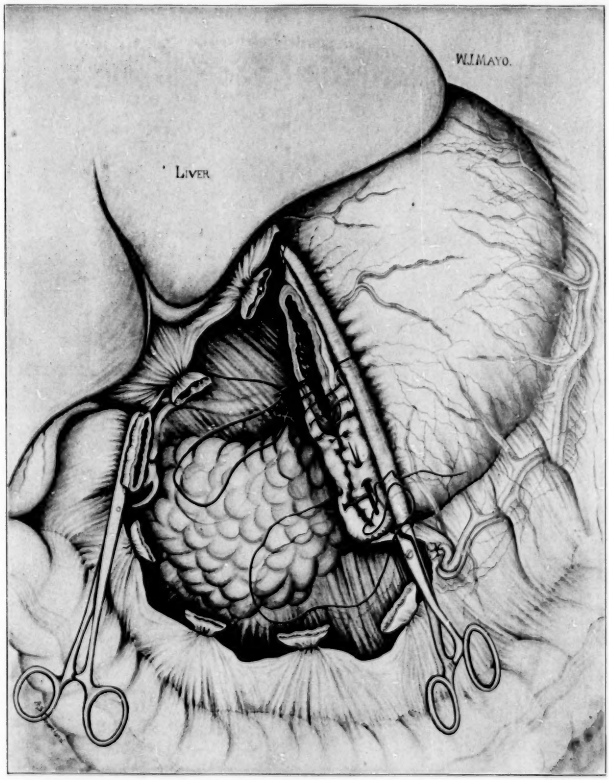

Fig. 3.—Showing closure of stomach, and the through-and-through catgut suture two-thirds completed, and outer linen continuous Cushing suture just started.

The gastric envelopes are thick, with but a loose attachment between the combined peritoneal and muscular coats and the mucous membrane, so that a firm hold of the outer tunics can be secured, insuring reliable union, while the mucous coat can be separately sutured. Running sutures are particularly effective and save much time (Fig. 3).

The entire operation of pylorectomy and partial gastrectomy can be performed in from 40 minutes to an hour and ten minutes, including opening and closing

average case the Billroth No. 2 is the operation of choice.

Granting that the statistics of operative attack are now within reasonable limitations, is the relief afforded sufficiently great to make it worth while? General statistics are unsatisfactory and we have, therefore, taken only the cases of Kocher, Kronlein, Mikulicz and ourselves.

In 1903 Kocher reported 75 cases, with an average mortality of 29.3 per cent. Of the 53 who recovered,

Fig. 5.—Gastrointestinal canal restored by independent posterior gastrojejunostomy. Billroth No. 2. Duodenum and jejunum dotted in as they lie behind.

Fig. 4.—Showing restoration of gastrointestinal canal after Kocher method. Seromuscular linen suture in behind, and through-and-through catgut just beginning.

21 were alive at the time of report and 6 had already lived more than 3 years, 1 alive and well after 13 years and 1 after 8 years. In the last 24 cases there were but 4 deaths, 16 per cent., and 2 of these, Kocher believes, could be fairly excluded, giving a mortality of 8 per cent. Matti, of Kocher's clinic, brings the Berne statistics up to 1904, giving a total of 100 gastric resections. There was considerable improvement in the percentage of those remaining cured over 3 years, and it was further shown that those who died of recurrence averaged 18 months of comfortable existence as gastric drainage was maintained to the end.

Kronlein, in 1902, reported 50 radical operations, with 14 deaths, 28 per cent. At the time of the report 22 patients were living, 4 three years and upward, 7 more than 2 years and 13 more than 1 year.

Mikulicz, in 1901, reported 100 stomach resections, with 37 deaths, 58 of those who recovered were traced. Seventeen were alive more than 1 year, 10 more than 2 years, and 4 more than 2½ years.

Dr. Chas. H. Mayo and I have resected the stomach 100 times, with 14 deaths, 14 per cent. This includes every case dying in the hospital, 5 after 3 weeks and 2 after more than 1 month. In the last 63 cases, beginning with Jan. 1, 1904, there were 6 deaths, 9.5 per cent., and in this group there were 25 consecutive cases, with but 1 death.

As to results, 17 of the 100 operations were excluded because performed for indurated ulcer in which gastric resection seemed indicated on account of possible existing malignant degeneration or other sufficient reason. Three cancer cases were also excluded because the diagnosis was not proved by microscopic examination. This gives 63 cases of gastric cancer in which radical operations were performed and which have been traced. Nine failed to live 6 months; 14, alive now, have been operated on too recently to be of value; 40 lived from 6 months to a year and 23 are alive now; 25 from 1 to 2 years and 17 alive now; 12 from 2 to 3 years and 10 alive; 5 from 3 to 4 years and 4 alive; 1 five years and is alive now.

It will be seen that five of our cases lived over 3 years, 1 dying in 3 years and 5 months from recurrence in the liver. As but 18 who survived the operation were operated on more than 3 years ago, we have 27.7 per cent. living 3 years and 22.2 per cent. alive and well over three years. Taking the most gloomy view possible, we have 22 operated on more than three years, with 4 dying as a result of the operation, 5 living over 3 years, or 22.7 per cent., and 18.1 per cent. alive and well over 3 years, a showing which compares favorably with the operative results for cancer in other parts of the body.

After all, the ease and thoroughness of the removal of the tributary lymphatics tells the story as to recurrence of cancer. Young people are most unfavorable subjects for operation because their lymphatics are abundant. Old people less so because, as pointed out by C. H. Mayo, all the lymphatics are undergoing a slow but sure atrophy during adult life, so that the aged have actually as well as relatively less lymphatics.

The prospect of the cure of cancer of the cervix uteri is interfered with by the proximity of the ureters, and in saving them we frequently sacrifice the patient so far as ultimate cure is concerned, because we do not thoroughly remove the tissues at this vital point.

In marked contrast to this is the arrangement of the lymphatic absorbents of the stomach, which have been beautifully worked out by Cuneo. He showed that normally no lymph glands existed to the left of the middle of the greater curvature and that the lymphatic circulation of this area was from left to right (Fig. 1).

Hartman seized on this basic principle and established the line of gastric section on the greater curvature to the left of the lymph nodes unless necessitated by the growth (Fig. 1).

Cuneo also showed that the lymphatics of the lesser curvature lay in the wall of the stomach itself. Mikulicz at once comprehended the necessity of routine removal of all the lesser curvature to the gastric artery (Fig. 1).

Kocher had already shown the desirability of the removal of the glands lying about the pylorus, especially in the groove with the gastroduodenal artery between the head of the pancreas and the duodenum. In favorable cases the entire lymph absorbents of the pyloric end of the stomach can be extirpated *en masse*. The dome of the stomach is disconnected in its lymphatic arrangement and drains into the splenic glands (Fig. 2).

DIAGNOSIS.

Exploratory incision is the only way an early diagnosis of cancer of the stomach can be established.

In spite of the remarkable development of laboratory methods the main diagnostic means are clinical, and prolonged attempts to establish a laboratory diagnosis are provocative of delay and should be discouraged. The most careful and painstaking methods of examination including these means should be insisted on, but they should not be unduly prolonged.

A suspicion of cancer of the stomach which *can not be disproved* by known methods of examination within a short space of time should lead the conservative practitioner to explain his suspicions to the patient and ask for surgical consultation. He is a reckless man who, under such circumstances, does not give the patient the benefit of the doubt.

The clinical history with the chemical and biologic examination of the stomach contents can but lead to a suspicion; and it is on this that we must act if we are truly conservative.

Given a patient of the middle period of life who, without cause, begins to lose flesh and strength, is unable to eat as before and whose digestion is delayed, we have a right to suspect gastric cancer. If, in conjunction with this, we find loss of motility and a delay of food in the stomach, with evidences of blood and reduction of hydrochloric acid, a tentative diagnosis of carcinoma is justified.

Especially must we be suspicious if in the history there are symptoms of old or recent ulceration. In our last 39 cases 56.4 per cent. showed direct evidence of carcinoma developing on ulcer. Graham showed a clinical history of ulcer in over 50 per cent. of the cases of gastric carcinoma which have come under his investigation, although years may have elapsed between the two diseased processes. It is possible that a larger number of cases in which cancer develops secondary to ulcer consult the surgeon than those without this history. The growing frequency of operation for ulcer brings to the operating table for the relief of obstructions, deformities and adhesions a considerable number of patients with gastric ulcer which has undergone cancerous degeneration.

Murphy well says: "The history of the majority of

cases of cancer of the stomach will show precancerous symptoms."

This question can not be settled by postmortem evidence. For instance, suppose we were told that the postmortem examination of one thousand women who died of cancer of the cervix uteri did not show a single one who had cervical laceration. Would not the query at once arise, If the cancer was so extensive that the patients were dead with the disease, how would it be possible for any one to know by such postmortem examination whether they had ever had laceration or not?

Is this not equally true of ulcer? Before the patient dies all trace of the ulcer would be lost in the gross extent of the disease.

The presence of a tumor is not necessarily a contraindication to operation. A small movable growth in the pyloric end of the stomach is a rather favorable indication, as the early obstruction attracts the attention of the patient by producing distressing symptoms which might not have come on at all if the tumor were in the body of the stomach.

Fortunately 80 per cent. of all gastric carcinomata are in the pyloric end and along the lesser curvature. Seventy per cent. are so situated as to interfere mechanically with motility and are, therefore, operable, while 10 per cent. are situated around the cardia, giving evidences of esophageal obstruction, and 10 per cent. in other parts of the stomach.

The earlier mechanical symptoms appear, the better the prospect of early diagnosis and cure.

There are some contraindications without exploration. One of the chief of these is the finding of typical carcinonamous glands in the supraclavicula fossa, particularly on the left side. This occasionally happens in patients in whom the diagnosis may be plain, but the question of operation is less so. Fixity of the growth and the presence of ascitic accumulations are also contraindications. Much has been written about the value of blood examination in cancer, especially as to the hemoglobin. We have had pylorectomy cases recover with the hemoglobin as low as 30 per cent. Again, some of the worst cases with obstruction may give a high percentage of hemoglobin due to concentration of blood from their inability to absorb fluids.

One can not help believing that more persistent attempts to better the early diagnosis of cancer would have followed on better operative results. There is no longer this excuse with an improving mortality of about 10 per cent. and 25 per cent. of the operative recoveries living more than three years. The time has come for energetic action. We must not disguise the truth from ourselves. All other means have failed, and exploratory incision of the suspected case is the only known means of early diagnosis. This should not discourage us, rather should it encourage better directed efforts toward securing some less formidable means of ascertaining the truth.

STEPS OF THE OPERATION.

1. Anesthesia.—We prefer ether anesthesia, giving a hypodermic injection of one-sixth of a grain of morphin 30 minutes previous to its administration. During the major part of the operation no anesthetic is required, as there is no pain in the visceral work.

2. Exploration.—A short incision is made in the midline half way between the umbilicus and the ensiform cartilage. Two fingers are introduced and the growth explored with reference to other structures. Next the extent of glandular involvement is ascertained. If the case seems fairly reasonable for operation, the incision is rapidly enlarged and the growth drawn out of the abdomen. This maneuver permits of careful examination of the lesser curvature, and especially as to whether the infiltration in this vicinity extends beyond the possibility of removal. The transverse mesocolon is then inspected, as it is often infiltrated from behind. The posterior surface of the stomach and its relation to the pancreas are palpated with fingers passed through a rent in the gastrohepatic omentum. We have dissected into the superficial surface of the pancreas a number of times without that fatality to which Haberkant (76 per cent.) and Mikulicz (74 per cent.) have called attention.

3. Mobilization of the Lesser Curvature (Figs. 1 and 2).—The stomach is drawn firmly downward and to the right, the left lobe of the liver raised by the fingers of an assistant, and the gastric artery tied with catgut on a needle at the highest possible point well beyond the lymphatic nodes. A pair of clamps are caught on the opposite side, and the artery and that portion of the gastrohepatic ligament which has been ligated with it are cut. With a few nicks of the knife the pedicle is partly detached from the stomach and allowed to retract. This permits of mobilization of the gastric wall and obtains a clear space near the esophagus for the division of the stomach. The superior pyloric artery and the remainder of the gastrohepatic ligament are now doubly tied and cut between, leaving the glands attached to the duodenum. This mobilizes the entire lesser curvature and makes the remainder of the work outside of the body.

4. Separation of the Pyloric End of the Stomach (Figs. 1 and 2).—The hand is passed into the lesser cavity of the peritoneum behind the stomach, adhesions are carefully divided and bleeding points ligated. Hot moist gauze pads are now placed in this space. Two pairs of narrow crushing clamps (Ferguson) are now placed on the duodenum well below the disease (as a rule, an inch below the pylorus) and the duodenum is divided between. The glands lying in the omentum immediately below the pylorus are carefully dissected upward so as to remain attached to the pyloric end of the stomach and a few bleeding points caught and ligated. The forceps on the stomach side with these glands is now lifted sharply upward, exposing the gastroduodenal artery in the groove between the head of the pancreas and the duodenum; this vessel is doubly tied and divided between ligatures. The glands in this region are dissected upward with the fat and hot gauze compresses placed in the space.

5. Freezing the Greater Curvature (Figs. 1 and 2).—The gastrocolic omentum is tied and divided in sections below the inferior coronary vessels, care being taken to avoid the middle colic artery; accidental inclusion of this vessel has caused gangrene of the transverse colon, of which it is the sole blood supply in 75 per cent. of the cases (Kronlein). Injury to the middle colic has necessitated resection of the transverse colon in a number of instances (Kocher). The lymph nodes lie close to the blood vessels, and at a point well beyond these structures the left gastroepiploic vessel is caught and tied. Care should be taken not to destroy its branches to the stomach beyond the point of ligation as it will be the sole blood supply for the contiguous stomach wall.

6. Removal of the Diseased Structures (Figs. 1 and 2).—Light elastic holding clamps are now placed on the stomach an inch or more back of the proposed line of resection, a second pair grasping the tumor side and the growth with the glands and fat removed *en masse*. As

it is cut loose, several catch forceps should be applied to the margins of the cut stomach surface projecting beyond the clamp to prevent retraction. This clamp is straight, quite elastic and rubber covered so that it will not crush or injure the stomach wall. We have found those of Scudder very satisfactory. The cut gastric wall is now lightly gone over with the actual cautery, particularly at the upper part, at which point we are most liable to fail to get well beyound the disease.

7. *Suture of the Gastric Stump* (*Fig. 3*).—After rearranging the hot moist packs, to furnish ample protection, with No. 2 chromic catgut on a straight needle, beginning at the greater curvature, a running suture is placed through all of the coats after the method of Charles H. Mayo. The needle enters on the peritoneum at one margin, passes through to the mucous coat and directly back on the same side from mucous coat to peritoneum. By doing this alternately, first on one side and then the other, by a single suture the peritoneal surfaces are rolled into contact, the parts being firmly brought into apposition and the hemorrhage checked. On approaching the lesser curvature it will usually be found that the clamps are too close to the edges of the wound to permit of this maneuver and it may be necessary to unclasp them in suturing the last inch. As this situation is also under considerable tension, it is well to place one or two mattress sutures of linen at once at the upper end to completely and permanently secure it, rolling the first catgut suture in by a wide grasp of the gastric wall far enough back to permit of union without tension. Any point not well turned or showing a tendency to ooze is secured by an independent mattress suture of linen. Beginning now at the greater curvature, a fine linen continuous Cushing suture turns in the gastric wall without tension over the first row.

8. *Restoration of the Gastrointestinal Canal.*—(a) After the method of Kocher (Fig. 4).

After careful cleansing, the stomach is drawn toward the duodenum. If it is sufficiently mobile the Kocher operation is performed, the duodenum being loosened up for the purpose. The posterior wall of the stomach near the greater curvature, at a distance of one and one-half to two inches from the gastric suture line and parallel with it, is sutured to the posterior duodenal wall just below the original clamp on it by a running suture of linen. One-sixth of an inch in front of this and just opposite the duodenal clamp an incision is made through the peritoneal and muscular coats of the stomach to, but not through, the mucous coat. The clamp on the duodenum is now removed, its cavity opened up and sponged out. The posterior cut wall is firmly sutured with chromic catgut on a curved needle in front of the the posterior linen suture through all of the coats of the duodenum and stomach, using a Connell or buttonhole stitch until the posterior inner row is completed half-way around. The mucous membrane of the stomach which has been sutured behind without opening is now cut through and its sutured lower margin inspected for hemorrhage or lack of apposition and one or two interrupted sutures of catgut applied if necessary. The through-and-through catgut suture is now continued around the anterior surface uniting the end of the duodenum to the stomach in a similar manner to that previously described in closing the stomach, the suture passing from peritoneum to mucous coat and back from mucous coat to peritoneum on the same side alternately and tied to the original end. The linen suture is now continued around to the starting point completing the second row. The entire suture line is inspected front and back and several extra mattress sutures of linen used to reinforce at points of tension. If the stomach has a tendency to drag on the duodenum the gastrocolic omentum close to the stomach is caught and anchored to the peritoneum on the left margin of the wound. The stumps of the gastrocolic omentum are brought together with a couple of catgut sutures and the entire field inspected and sponged. The deep gauze compresses are now removed. If these have been carefully placed and renewed at intervals, there will have been no contamination or exposure.

(b) Closure of the duodenal stump and independent gastrojejunostomy, Billroth No. 2 (Fig. 5).

If the stomach can not be approximated to the duodenum, the duodenal stump is turned in by a circular suture after ligature in the groove made by the forceps and a posterior gastrojejunostomy is performed without a loop, that is, within three inches of the origin of the jejunum. The opening in the stomach, however, should run from above down, right to left, so that the proximal end of the jejunum shall lie close to the suture line, the distal end at the lowest point and passing to the left. After completion of the gastrojejunostomy in the usual manner, the jejunum at once drops down into the left iliac fossa in its normal position. A few sutures close the rent in the transverse mesocolon in such fashion as to protect the suture line. If the patient is in a poor condition, an anterior or posterior Murphy button operation can be made to save time. The button must be protected, however, by at least four mattress sutures of linen at intervals to prevent separation.

9. *After-Care.*—After resection the patient should be placed in bed, the head and shoulders elevated to the semi-sitting posture and a glass female douche point introduced above the internal sphincter, through which from one to four quarts of one-half strength normal saline solution is allowed slowly to enter the rectum for absorption from a gravity bag, thirty minutes to three hours being used in this process (Murphy). This is repeated in twelve hours with a lesser amount. From one-half to one ounce of hot water is allowed by the stomach every hour after sixteen hours, and the usual experimentation of liquid foods begun after twenty-four to forty-eight hours, the rectum being used as an auxiliary for four or five days.

PALLIATIVE OPERATIONS.

The results of palliative operations for cancer of the stomach are relatively unsatisfactory. The statistics of gastroenterostomy for the relief of obstructions due to inoperable malignant disease shows as high or higher a mortality than gastric resection; the comparison, however, can not be directly made, as gastroenterostomy can be applied in cases in which radical incision can not be performed.

The average prolongation of life after gastroenterostomies is not over four to six months, and the fact that patients live beyond this time gives rise to the query: Might not radical operation have given a cure? In 143 cases of gastroenterostomy for malignant disease reported by Mikulicz the mortality was 33 per cent., the average prolongation of life 6.4 months. In 74 cases by Kronlein the death rate was 24.3 per cent. and the average prolongation of life was but three months. In 140 of our cases the death rate was 15 per cent. and the average prolongation of life, so far as known, was less than five months.

It is true that the mortality in recent cases is very much less, perhaps not over 10 per cent., but the leaving of the ulcerating, bleeding mass in the stomach to its own devices is unsatisfactory. The operation merely prolongs a chronic invalidism by a few weary months which are without hope. The judge who says to the prisoner, "I sentence you to death after five months," has not given the prisoner a desirable intervening existence.

For cancerous obstruction of the cardiac orifice gastrostomy offers the only means at our command, a palliation which is not frequently demanded by the patient when the facts are placed plainly before him.

Of gastrostomies for cancerous cardiac obstruction there were 18 cases, with 3 deaths, 16.6 per cent. Average duration of life about the same as after gastroenterostomy.

Of explorations with the discovery of hopeless gastric carcinoma there were 72, with one death in the hospital. The average stay of patients explored for incurable disease is less than five days, the deep wounds being closed with catgut, and the strong aponeurotic structures are braced with buried mattress sutures of linen, silk or silver. This enables the patient to get about at once and return to his home to spend his remaining existence with family and friends.

It will be seen that of the total 313 cancers of the stomach operated on up to Feb. 1, 1906, only 26 per cent. were early enough to permit of radical extirpation.

In conclusion, let me urge upon the profession the merits of radical operation on suitable cases of gastric cancer.

THE NEURONS.

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BALTIMORE.

(*Concluded from Page 935.*)

The next questions to be decided are, (1) Do the minute fibers ending in the terminal buttons form anastomoses with one another? and (2) Do neurofibrils pass from the terminal buttons into the adjacent cell body or dendrite to form connections with the neurofibrils lying in the protoplasm there? I am unable to find them in the preparations I have been studying, nor can Ramón y Cajal, von Lenhossék, Retzius, van Gehuchten or Mahaim in theirs. Held[12] thinks that he sees such communications, and Max Wolff is inclined to a similar view. Further study is needed to decide this point. Ramón y Cajal is so convinced of the separateness of the terminal buttons from the adjacent nerve-cell protoplasm that he unhesitatingly assures us that not only is the neuron conception valid, but even the contact doctrine is better supported now than ever before, and Sherrington[13] takes the ground that the cell membranes at the junctions of the neurons (synapses) may be of very great importance in the reflex processes.

Certain it is, if one makes a quick review of all the theories which have been advanced, with the aim of discrediting the views based on the findings with Golgi's method, one comes necessarily, as van Gehuchten has emphasized, to a double conclusion: First, none of the theories opposing the neuron conception has led to the objective demonstration of the existence of a real continuity among the nerve elements, and, second, there is a marked difference between so-called neuronists and so-called antineuronists in interpreting known facts. The former, faithful to the facts observed, declare that in their preparations they find only free ramifications, and, not being able to see intercellular anastomoses, they maintain that one should not admit that they exist. The opponents of the neuron conception affirm that intercellular anastomoses ought to exist, but, not being able to demonstrate them, they themselves supply what is lacking in their preparations; using theoretical considerations and physiologic arguments as a basis, they construct the desired continuity out of whole cloth. Advocates of the neuron conception and of the contact doctrine naturally regard this negative result of the numerous efforts made to establish the continuity as a very convincing argument in favor of the real independence of the neurons. Opponents of the neuron conception think that continuity is, *a priori*, so probable that those who deny it should bring the absolute proof that it does not exist.

May it not be possible that the multiplication of hypotheses has been largely due to the supposition, thus far baseless, that the neurofibrils represent the sole conducting element in the nervous system? In an address delivered in 1899,[14] commenting on this subject, I said: "Some investigators have been tempted, very naturally, I think, to assume that the fibril-like structures in the ground substances represent the essential conducting substance, but, however plausible, this is not yet satisfactorily proven, and, even if such structures were shown to be particularly suited for such conduction, a similar function for other parts of the nerve-cell protoplasm would by no means be excluded." Bethe and Mönckeberg's argument that only neurofibrils pass through the nodes of Ranvier has no weight if it be true, as is asserted, that perifibrillar and interfibrillar protoplasm also pass through the nodes. There can be but little doubt that the neurofibrils are of some special importance for the cells, but we are as yet as ignorant of the function they subserve as we are of the functions of the fibrils in the muscle cells and in other cells of the body. Schiefferdecker[15] suggests that the fibrils are not for the purpose of isolated conduction, but that they, together with the plasma, produce a definite chemical transformation in the neuron, which is propagated through the axon and is able to excite other nerve cells or end organs.

In hibernating animals the neurofibrils are quite different in appearance from those in active animals (Fig. 16). Studies of the neurofibrils in pathologic conditions have already been begun (Marinesco, Bellot *et al.*), and it is found that they undergo definite changes when the neurons are injured.

(*b*) *The Neuron as a Physiologic Unit.*—Under this heading I shall refer to two points only: 1. The possibility of nerve conduction in the absence of the cell body of the neuron. 2. The so-called "autoregeneration" of peripheral nerves.

With regard to the first of these two points, Bethe's

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13. Sherrington, C. S.: "Ueber das Zusammenwirken der Rückenmarksreflexa und das Prinzip der gemeinsamen Strecke." Ergebn. d. Physiol., Wiesb., 1905, vol. iv, pp. 797 to 850.

14. Barker, L. F.: "The Progress of Neurology," Yale Medical Journal, 1899.

15. Schiefferdecker, P.: "Nerven u. Muskelfibrillen, das Neuron und der Zusammenhang der Neuronen. Deutsche med Wochft., 1905, vol. xxxi, p. 613; also, "Ueber die Neuronen und die innere Sekretion." Sitzber. d. Niederrhein. Gesellsch. f. Natur d. Heilk., Bonn, 1905, Oct. 23.

so-called fundamental experiment has attracted much attention (Fig. 17). In studying the nervous system of a crab (*Carcinus mœnas*), he cut off the motor cells at the periphery of the ganglion of the second antenna, and found that as long as the sensory fibers (F. s.) and motor fibers (F. m.) of the antenna remained intact and in connection with the cell-free neuropile of the center of the ganglion the antenna behaved normally; the tonus of the muscles is preserved and the reflexes persist unaltered. Bethe thinks this experiment proves conclusively that the cell body, the part of the neuron containing the nucleus, is not necessary for the reflex functions, and that the normal tonus of the muscles does not depend on the cell body, excitation of the sensory fibers being transmissible to the centrifugal fibers in spite of the entire absence of nerve cells. If this experiment be confirmed, it will show that the whole neuron does not necessarily enter into every function, or, in other words, that there may be nerve functions which can be carried out with utilization of a part only of the cell. The experiment points also to the validity of the hypothesis, advanced by Ramón y Cajal and van Gehuchten, of the axipetal conduction function of the dendrites. It was thought at first to demonstrate the conducting function of free extracellular neurofibrils, but recent studies indicate, as has been already said, that the neurofibrils of the neuropilem are all embedded in the protoplasm of the processes of nerve cells.

The question of the possibility of autoregeneration of the distal end of a divided nerve which has been prevented from uniting with its central end is one of very great interest. Bethe has repeated the earlier experiments of Philippeaux and Vulpian, and asserts that in young animals autoregeneration takes place, the Schwann cells, uniting end to end, building the new nerve fibers and producing not only new axons, but actually new myelin sheaths and neurofibrils (Fig. 18). Bethe's experiments have been confirmed by Ballance and Stewart in England, van Gehuchten in Belgium, Barfurth[16] in Germany, and recently also by Raimann.[17] The validity of the experiments has been denied by Munzer and by Langley and Anderson,[18] the latter asserting that if anastomosis with other nerves in the limb and all possibility of outgrowth from the central stump be prevented no autoregeneration occurs. The supporters of autoregeneration are positive that they prevent any connection of the central stump of the sciatic, the nerve experimented on, with the distal stump of the divided nerve, Raimann having even excised the portion of the spinal cord and spinal ganglia corresponding to the origin of the sciatic nerve in order to prevent absolutely any central outgrowth. In view of Frossmann's[19] interesting experiments, which show the powerful positive attractive force (neurotropism) exerted by disintegrating nerve substance on living nerve fibers at a distance, it has become necessary to think not only of an outgrowth from the central stump of the *N. ischiadicus*, but also from branches of the other nerves of the lower extremity, namely, the *N. femoralis* and *N. obturatorius*. To test this point Lugaro of Florence[20] excised the whole lumbosacral cord and the corresponding spinal ganglia in three puppies. After three months the nerves of the limbs were found to be faradically totally inexcitable, and histologic examination showed entire absence of any autogenous regeneration. It is highly important that a series of similar experiments be performed, and that the truth in this matter be finally determined. Should autoregeneration actually occur, we should have another wonderful example of the power of adaptation of the body in utilizing in regeneration histologic elements of entirely different embryonic origin from those by which the structure is first formed. It would not be any more wonderful, however, than the generally accepted regeneration of an extirpated crystalline lens by the iris epithelium in Triton.

(*c*) *The Neuron as an Embryologic or Cellular Unit.*—The embryologic researches of His, which taught that the axis cylinder of a nerve fiber represents the outgrowth from a single nerve cell, had, as we have seen, much to do with the origin of the neuron conception. The neurilemma cells forming the sheath of the peripheral nerve fibers were regarded as accessories for protective or nutritive purposes. The studies of Golgi's preparations of young embryos confirmed in the most striking way the opinions of His (Fig. 19).

This doctrine of the unicellular origin of the neuron has by no means gone unchallenged. Indeed, there is a large school of investigators to-day who maintain that the peripheral nerve fibers, inclusive of their axons, arise in the embryo as the result of the fusion of long chains of cells placed end to end. This pluricellular or catenary explanation of the origin of the peripheral nerve fibers has been extended even to the dendrites and the nerve cell of the central organs, certain Italian investigators especially asserting that the rows of cells fuse inside the central system to give rise to them, their nuclei gradually disappearing.[21]

Bethe recently undertook again the study of the development of the peripheral nerve fibers from the embryologic side, and published his results in his book of 1903. He states that, before the appearance of any trace of peripheral nerve fibers, a band of spindle-shaped cells can be seen in the place where the nerve is to be formed, and it is these cells, he believes, which produce by differentiation of their protoplasm the neurofibrils of the peripheral nerve fibers and the nuclei of their internodal segments (Fig. 20). Bethe looks on this cellular band as a true syncytium, the protoplasmic part of which builds filaments, which, extending from cell to cell, finally all fuse together and become continuous with the nerve cells in the centers. Gradually each of these filaments becomes surrounded by nuclei and myelin sheath, and a large number of individual nerve fibers ultimately arise from the cellular band. Similar views of the origin of the peripheral fibers have been advanced by Apáthy and Sedgwick.

16. Barfurth, D.: "Die Regeneration peripherer Nerven." Anat. Anz., Jena, 1905, vol. xxvii, supplement, pp. 160 to 172.

17. Compare abstract, Neurol. Centralbl., Leipzig, 1905, p. 1015.

18. Langley and Anderson: "Autogenic Regeneration in the Nerves of the Limbs." Jour. Physiol., Lond. and Camb., vol. xxxi, 1904.

19. Frossmann: "Ueber die Ursachen welche die Wachsthumsrichtung der peripheren Nervenfasern bei der Regeneration bestimmen." Beitr. z. Pathol. u. pathol. Anat., Jena, 1898, vol. xxiv; also "Zur Kenntniss des Neurotropismus.", ibid., vol. xxvii, 1900.

20. Lugaro, E.: "Zur Frage der autogenen Regeneration der Nervenfasern." Neurol. Centralbl., Leipzig, 1905, pp. 1143-1144.

21. Compare Capobianco and Fragnito. "Nuove ricerche su la genesi ed; rapport imutui degli elementi nervosi e neuroglici?" Ann di Neurol., 1899, vol. xvii; Pighini, G.: Sur l'origine et la formation des cellules nerveuses chez les embryons de Sélaciens. Bibliogr. Anat., Paris and Nancy, vol. xiv, pp. 74-105; La Pegna, E.: Su la genesi ed i rapporti reciproci degli elementi nervosi nel midollo spinale di pollo. Ann. di Neurol., 1904, vol. xxii.

Hensen[22] has for forty years opposed the doctrine of an outgrowth of free nerve endings from the centers to the end organs. It is his opinion that, from the earliest stages of development, nerve-cell and end organ are connected by long-drawn-out intercellular bridges. As the cells go on dividing, the connecting intercellular bridges also divide more or less completely. The divided nerves gradually become separated from one another as growth proceeds. Since many of the subdivisions are

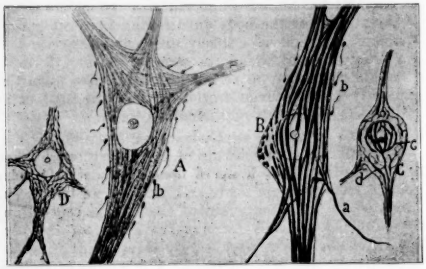

Fig. 16.—Cells of the spinal cord of the lizard. *A*, *D*, motor and funicular cells in the state of activity (lizard kept for three hours in the thermostat at 30). *B*, *C*, motor and funicular cells in the state of repose (lizard kept at a temperature of 12). *a*, axis cylinder; *b*, terminal buttons of other axons; *c*, perinuclear network; *d*, thickened primary neurofibril. (After Ramón y Cajal, 1903.)

incomplete, there finally arises an interminable network of fibers. Hensen then assumes that certain portions of this network become useful to the body as a nervous system and persist; the unused portion of the network atrophies and disappears. The peripheral networks

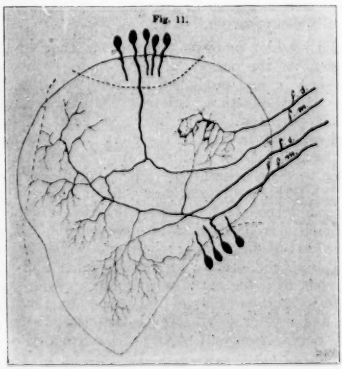

Fig. 17.—So-called "fundamental experiment" of Bethe. The drawing indicates the position of the motor cells of the neuropilem in the ganglion of the crab. The cells were cut away as indicated by the dotted lines. f. s., sensory fiber; f. m., motor fiber. (After Bethe.)

22. Hensen, V.: "Ueber die Entwickelung des Gewebes und des Nerven im Schwanze der Froschlarve." Virch. Arch., vol. xxxi, 1864, p. 51; "Ueber die Nerven im Schwanz der Froschlarven." Arch. f. mikr. Anat., Bonn., 1868, vol. iv, pp. 111 to 124; Die Entwickelungsmechanik der Nervenbahnen im Embryo der Säugetiere, Kiel and Leipzig, 1903, pp. 1 to 51.

have been carefully studied of late by an especial technic by O. Schultze.[23]

Up to 1904 it had become ever clearer that unanimity of interpretation of the histologic pictures of developing nerves was not to be arrived at unless some new and convincing method could be devised which would settle the question definitely. In April of that year Braus[24] published the results of some very interest-

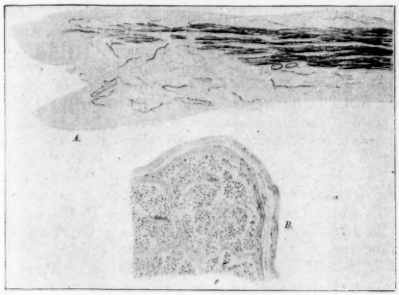

Fig. 18.—*A*, longitudinal section through an "autoregenerated" nerve; *B*, transverse section through the same nerve a little further distalward. (After Bethe, 1903.)

ing experiments on tadpoles (Bombinator). At the period of appearance of the fore limb as a minute bud, he excised this bud and transplanted it to a point between the bud for the hind limb and the root of the tail. The bud grew and gave rise to an extremity quite like a fore limb, only out of position. At the time of transplantation the limb already contains the rudiments of nerves and blood vessels. This differentiation, according to Braus, recedes during the next few days after transplantation and the tissues of the bud again come

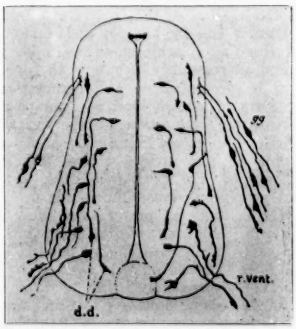

Fig. 19.—Section of spinal cord of a chick at the third day of incubation. (After Ramón y Cajal.) *g g*, cells of spinal ganglion; *d d*, ends of cells on which the dendrites develop later. At the opposite poles are shown the embryonic axons, at the extremities of some of which there are bulbous swellings. *v. vent.*, ventral root.

23. Schultze, O.: "Beiträge zur Histogenese des Nervensystems. I. Ueber die multizelluläre Entstehung der peripheren sensiblen Nervenfaser und das Vorhandensein eines allgemeines Endnetzes sensibler Neuroblasten bei Amphibienlarven." Arch. f. mikr. Anat., Bonn, 1905, vol. xxxvi, p. 41 to 110, 4 bl.

24. Braus, H.: "Experimentelle Beiträge zur Frage nach der Entwickelung peripherer Nerven." Anat. Anz. Jena, 1905, vol. xxvi, pp. 433-479.

to resemble an indifferent blastema. Braus, following the idea of Roux, believes that this bud in its further growth leads its own life, that development goes on in its tissues by autodifferentiation. Certain it is that the blood vessels, bones, muscles and nerves develop in it. As early as three weeks after the operation the nerves in the transplanted limb present a development equal to that of a normal limb. Though Braus believes that these nerves have developed "autogenetically," he admits that they are connected by means of three strands with the general nervous system of the tadpole; he feels sure, however, that these strands are too delicate to have served for the passage from the central nervous system to the limb of all the peripheral nerve fibers to be found there. It looked, therefore, at first as though the doctrine of the pluricellular origin of the peripheral nerve fibers were about to receive support from the experimental side.

In the summer of the same year (1904), however, the subject was approached in a most ingenious way by one of our American anatomists, Dr. Ross Granville Harrison of Baltimore.[25] At a meeting of the Society of Naturalists of the lower Rhine he reported some experiments in which the sheath cells or neurilemma cells which give rise to the bands of cells along the lines of developing nerves were eliminated by cutting out their source at a very early embryonic stage before any nerves whatever had developed. He found that these sheath cells arise in the region of the so-called neural crest

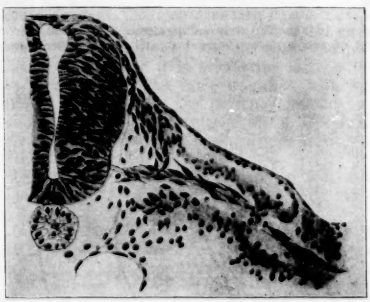

Fig. 20.—Transverse section through an embryo of chick after an incubation of two days, twenty-one hours. The bands of spindle-shaped cells in the course of the spinal nerves is illustrated. (After Bethe, 1903.)

along with the cells which give origin to the spinal ganglia. By cutting away a thin strip at the back of the embryo, when it is only 3 mm. long, he got embryos to grow which at the end of a week had no sensory ganglia or sensory nerves, though they had motor nerves. But the remarkable fact is that these motor nerves, instead of showing cell bands in their course, as under normal conditions, appeared as naked, non-nucleated fibers which could be traced as such all the way from the spinal cord to the extreme ventral part of the musculature (Figs. 21, 22, 23 and 24). Here, at a blow, the proof was brought that the peripheral spinal nerves may develop in the entire absence of sheath cells.

25. Harrison, R. G.: "Neue Versuche und Beobachtungen ueber die Entwickelung der peripheren Nerven der Wirbeltiere." Bonn, 1904. Reprinted from Sitzber d. Niederrhein. Gesellsch., Nat. u. Heilk., Bonn, 1904.

The first experiments were made on the embryo of *Rana escalenta;* subsequently Dr. Harrison confirmed his results on the embryos of two American species. *Rana sylvatica* and *Rana palustris.* But, true to the principles of the experimental method, Dr. Harrison did not remain satisfied with the proof—he sought the counterproof. As an *experimentum crucis,* it occurred to him to excise, in these young embryos, the ventral portion of the neural tubes, i. e., to cut away the cells which, according to the doctrine of His, give rise to the axis cylinder processes of the spinal motor nerves. Leaving the neural crest intact, that is, the region which gives rise to the spinal ganglia and the sheath cells, Harrison argued that if the opposing doctrine that the sheath cells form the motor nerves is true the latter and the sensory nerves should develop normally, even with the anterior horn cells absent. The experiment is one difficult to perform, and a number of attempts failed to give conclusive results, but Harrison has performed it a

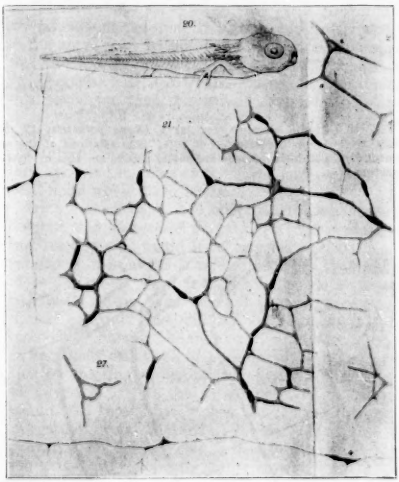

Fig. 21.—Peripheral nerve network. (After O. Schultze.)

number of times successfully. What was the result? The spinal ganglia and the peripheral sensory nerves, with their accompanying sheath cells, developed normally, but not a trace of a spinal motor nerve appeared in the region operated on, nor did the sheath cells form bands where the motor nerves normally appeared (Fig. 25). The proof, then, has most brilliantly been brought that the fibers of the motor nerves are processes of the anterior horn cells, that these processes can extend a long distance from the spinal cord to the muscles in the entire absence of sheath cells, and that the sheath cells are incapable of building these fibers by themselves. If any one could have given me my choice of doing successfully any single piece of experimental work that has been done in neurobiology since 1891, I should unhesitatingly have chosen this. It is an experimental research of the first order, one which, if confirmed, will always redound greatly to the credit of anatomic science in America.

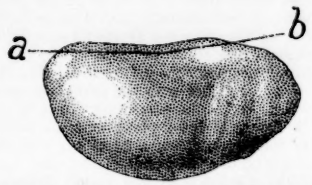

Fig. 22.—Profile view of frog embryo (*Rana esculenta*, 2.7 mm. long) at the stage of operation; the line (a b) indicates the incision. (After Harrison.)

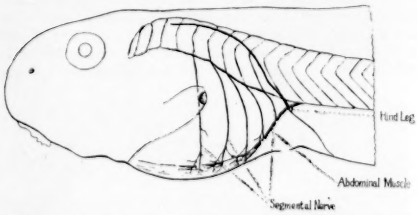

Fig. 23.—Profile view of frog larva (*Rana palustris*, 12 mm. long) after complete resorption of yolk. The relations of the segmental nerves and the primary abdominal muscle are shown. (After Harrison.)

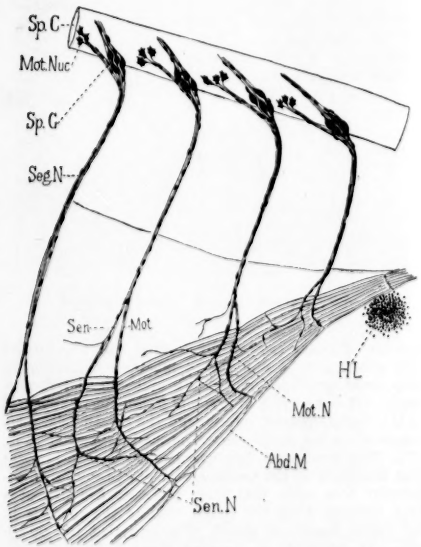

Fig. 24.—Semi-diagramatic view of the nerves of the abdominal walls of the frog larva (normal specimen). Ab. D, primary abdominal muscle; HL, rudiment of hind leg; Mot. N. motor branch of segmental nerve running in inscriptio tendinea of the primary abdominal muscle; Mot. Nuc., motor nucleus (ventral horn cells) in spinal cord; Seg. N, segmental (spinal) nerve; Sen. N, sensory branch of spinal nerve running to integument outside of muscle; Sp. C, spinal cord; Sp. G, spinal ganglion. (After Harrison.)

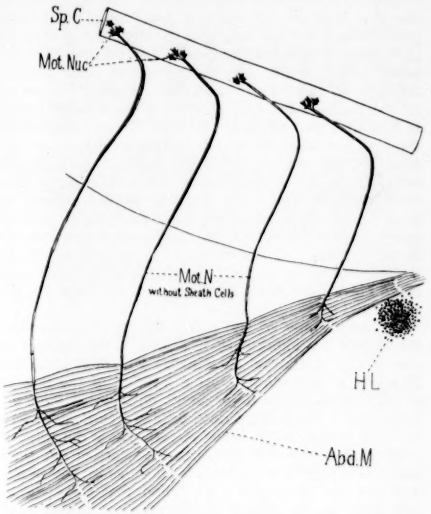

Fig. 25.—Semi-diagramatic view of the nerves of the abdominal walls of a frog larva from which the neural crest had been removed, as shown in Fig. 22. Only motor nerves are present, and these consist of axis cylinders without sheath cells. (After Harrison.)

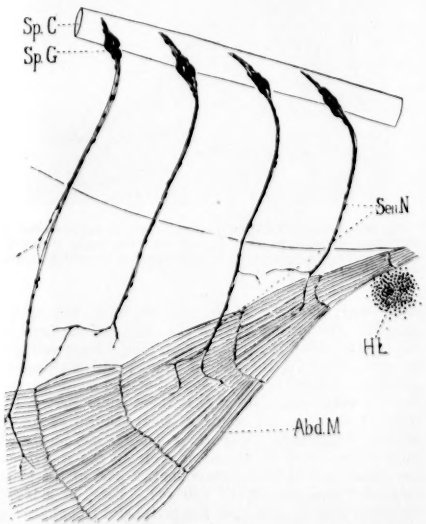

Fig. 26.—Semi-diagramatic view of the nerves of the abdominal walls of a frog larva from which the ventral half of the spinal cord had been removed at the stage represented in Fig. 22. Absence of the purely motor rami, which normally run in the inscriptiones tendineæ. (After Harrison.)

But even should it have been made out that the neuron is pluricellular in its origin the anatomic unit, which Waldeyer called the neuron, would still have existed. It would have been an organ then, rather than a single cell.

I should like to go on to the newer work, dealing with the origin of the connection between ganglion cell and end organ, into the researches supporting the free outgrowth theory, on the one hand, and the persistent cell-bridge theory on the other, but I have already exceeded the time allotted to a Harvey lecture and must be content with referring you to Harrison's forthcoming article[26] in which these matters are discussed more ably than I could deal with them.

And now as to the validity of the neuron conception and of the various attached neuron doctrines I shall leave you to judge for yourselves. I am glad if in this hour I have been at all successful in putting the actual facts as known at present before you or in encouraging you to hold an open mind regarding theories where facts are wanting.

APPENDICITIS: ITS TREATMENT.*

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Were it possible under all circumstances, in the treatment of appendicitis, to follow the dictum to operate within the first twenty-four to thirty-six hours from the onset of the disease, we would not be confronted with the varied pathology and the many mooted questions of dealing with it in attempting to treat this disease successfully. The early operation will, however, probably never become the universal practice, and we will still continue to encounter all of the different pathologic conditions that are associated with neglected cases of the disease.

The reasons why the early operation will never become the universal practice in appendicitis are chiefly the following:

(a) The family physician, and not the surgeon, is usually called to diagnose and treat the disease in the beginning. It is expecting too much of the family physician when we look to him to diagnose the disease and to call the surgeon all within twenty-four to thirty-six hours from the onset of the attack.

(b) When the diagnosis of appendicitis is made within the first twenty-four or thirty-six hours, and an operation is advised, it is necessary to gain the consent of the patient and his friends, which it is not always possible to do within the time limit for an early operation.

So that, while the early operation should be the practice in appendicitis when possible, it must be acknowledged that its universal application is impractical, even under favorable circumstances, and we must expect to do the late operation as a life-saving measure, and the interval operation more often than the early.

EARLY MEDICAL TREATMENT.

The most usual cause of death in appendicitis is diffuse peritonitis, and the treatment of the disease largely resolves itself into the best means of preventing its occurrence, either with or without operative measures. Heretofore there has been considerable difference of opinion as to the early medical treatment of appendicitis, and the practice of purgation with salines has been the most popular and the most universally used. I wish to deprecate this practice, unless, at the very onset of the disease, or an operation has been decided on, and the patient is so situated that the operation can be performed at once. Purgation, unless in the very beginning of an attack, is capable of doing a great deal of harm, because of the resulting increased peristalsis, which tends to disseminate the infection to the general peritoneum.

The claims that have been made concerning the therapeutic effect of purgation in lessening the virulency of the attack, and tending to unload the appendix into the bowel, are certainly not based on sound reasoning. In very many cases operated on by me within the first thirty-six hours from the onset of the attack, where perforation had not occurred, the great omentum and several coils of the small intestines were softly adherent to the appendix. In several of these cases the appendix was on the verge of perforation; a necrotic area could be discerned. Had purgation been the treatment at this particular time, instead of operative interference, it is reasonable to conclude that the soft adhesions would have been torn away by the peristaltic action of the intestines and perforation of the appendix would have occurred in some of the cases, and perhaps diffuse peritonitis would have followed.

On the other hand, had operation in these cases been delayed, and, instead of purgation, a treatment had been instituted which would have arrested peristalsis in the intestines, it is as reasonable to conclude that walled-in abscesses would have occurred. The total arrest of peristalsis in the intestines will tend to protect the inflamed appendix and will not interfere with Nature's method of limiting the inflammation. Were it possible to anticipate an attack of appendicitis, thorough purgation for the single purpose of emptying the bowel would be advisable, or, at the actual onset of the attack, it would still be admissible, but the routine treatment of purgation several hours after the onset is capable of aggravating the disease. While it is the consensus of opinion that there is no medicinal treatment which can arrest the pathology in the appendix, it does seem that it has not been made plain that in cases refusing operation, or until the case is turned over to the surgeon, the treatment should be directed solely toward the protection of the peritoneum.

In a certain proportion of cases of appendicitis, variously stated at from 70 to 85 per cent., the pathology unaffected by treatment will not progress to the stage of ulceration and perforation, or to gangrene, but after an acute active course will become subacute and chronic and in some cases subside, leaving the appendix crippled and subject to recurrent attacks. This fact has led the unthinking physician to disfavor operative procedures and to rely on remedial agents directed toward the arrest of the pathology in the appendix. But the fact that, in the beginning of appendicitis, it is impossible to determine by any known method the cases which will safely pass through the initial attack and those which will perforate or become gangrenous has rightly placed the disease as a distinctly surgical one.

The physician, however, in the vast majority of cases, is expected to diagnose the disease and institute treat-

26. To appear in the Journal of Experimental Zoology; the experiments were briefly reported at the Association of American Anatomists at its meeting in Ann Arbor, December, 1905.

* Read before the Western Surgical and Gynecological Association at Kansas City.

ment until the patient and his friends agree to have a surgeon called. This frequently bodes delay, which makes it all important that the physician be capable of instituting the proper treatment until the arrival of the surgeon. That delay on the part of the physician (a) to make a correct diagnosis in appendicitis, and institute the proper treatment, (b) to promptly call the surgeon or refer his case to a surgeon, is productive of too great a number of cases of diffuse peritonitis, septicemia and pyemia as complicating pathology that it is the province of the surgeon to treat.

I believe that the many mooted questions of how best to treat the inflamed appendix until operative measures have been decided on have at last been well settled, and the treatment thus agreed on is the legitimate outcome of knowledge acquired from operative procedures during the different stages of the disease. Such knowledge, in connection with the proper understanding of the physiology of the peritoneum, the intestines, the mesentery and the great omentum has finally determined a rational treatment of the inflamed appendix, not with the hope of curing the pathology in the appendix, but rather for the protection of the general peritoneum.

It is necessary for the physician, in instituting treatment in appendicitis, to be thoroughly imbued with the following facts, which may be reasonably deducted from the present state of our knowledge of the subject: 1. The patient should be advised of the advantages of an early operation. 2. If this is impractical or will not be consented to, then treatment must be instituted to protect the peritoneum, the great source of danger to the patient, until operation is decided on or finally declined.

As no one is capable of predicting the course any case of appendicitis may pursue, whether to perforation or gangrene or to imperfect resolution, it is imperative that the early treatment in every case should be in anticipation of the occurrence of gangrene and perforation of the appendix and be directed toward the prevention of diffuse peritonitis. We should here interpret Nature's method of caring for the peritoneum, in the presence of infection within its cavity, viz., (*a*) by the formation of adhesions between the great omentum, intestines and appendix, (*b*) by the distention of the intestines and arrest of peristalsis, (*c*) by the rigidity of the overlying abdominal muscles and the underlying right psoas muscle.

It is the occurrence of the above-mentioned changes which effectually wall-in abscesses in perforative and gangrenous appendicitis, diffuse peritonitis being prevented. It is true that the above-mentioned phenomena do not occur in cases in which the inflammation does not extend through the lumen of the appendix, and are not always effectual in limiting the inflammation in perforative and gangrenous cases, but, until operation is decided on, I believe in assisting Nature's method of defense in every case.

The principles, then, of treatment should be the arrest of peristalsis in the small intestines and the maintaining of rest in bed. Peristalsis can be the most effectually arrested by abstinence from food and drink. Nourishment may be administered by the rectum. Posture may add something through the principle of gravity, so that we would place the patient in the improved Fowler position, that is, elevation of the head and left side of the bed. Lavage of the stomach should be practiced where vomiting is persistent. An ice bag placed over the region of the appendix for the first twenty-four or forty-eight hours will tend to relieve pain, but, should this measure fail, morphin should be administered hypodermically.

Cases thus treated from the incipiency of the attack, where early operation is declined, will have the usual percentage of perforation and gangrene of the appendix with walled-in abscesses, and as well the proportional number of cases of lymphatic infection with metastatic abscesses, but the proportional number of cases of diffuse peritonitis will be very much lessened.

WHEN TO OPERATE IN APPENDICITIS.

I am an advocate of the early operation in all well-pronounced cases of the disease, that is, within the first thirty-six hours. The dictum to operate as soon as the diagnosis is made may be dangerous, and should always be qualified, as the diagnosis may have been made too late for an early operation. When the case is seen too late for the early operation, as evidenced by the presence of circumscribed peritonitis or beginning diffuse peritonitis, then I would advise the abstinence from all food and drink, the instituting of rectal alimentation, the repeated administration of morphin to allay pain and the placing of the patient in the improved Fowler position. Such a plan of treatment, if rigidly carried out, will, in my opinion, safely carry a large number of cases through the first attack, and an interval operation can be made. A small percentage of such cases will have gangrene of the appendix, perforation and abscess formation, which will in most instances under such a course of treatment become walled-in, and operation may be deferred until the subsidence of acute symptoms. The fact that no one can be capable of diagnosing the extent of the pathology in and surrounding the appendix from the symptoms present, or, from any method of physical examination that can be instituted, in cases of appendicitis seen by the surgeon too late for an early operation, has led to the adoption of different methods of treatment, and it is this class of cases in which the greatest diversity of opinions exist among surgeons as to the best method of procedure.

In cases tending to abscess formation, the prevailing practice is to defer operation until the walling-in process has occurred. It has been quite well demonstrated that the pus tends to become less virulent from day to day and has been found sterile at operation. In perforative appendicitis, if the patient is in a hospital, or can be removed to a hospital within a few hours, immediate operation should be performed. However, when operation is delayed until progressive peritonitis is evident, then I would not advise operative interference, but would adopt the treatment heretofore mentioned, believing it to be more effectual in limiting the inflammation.

OPERATIVE METHODS AND TECHNIC IN ABSCESS CASES.

The question of how best to remove pus from a walled-in abscess within the peritoneal cavity successfully, without contaminating the general peritoneum, is still one of the problems in abdominal surgery. The location of the abscess, whether postcecal and extending high up behind the ascending colon, or reaching low down in the pelvis, or located anteriorly high or low in the abdomen, will determine to some extent the selection of a method of procedure. We are also confronted here by two distinct propositions—to perform drainage as a life-saving measure without the institution of complete work and to drain, remove the appendix, or, if the appendix has sloughed off, to close the opening in the cecum. The first is a mere life-saving measure, the sec-

ond radical complete work. I think I am correct in saying that the tendency is growing in favor of radical complete work, and the more competent the surgeon the more often is he able to do successful radical work. That there is, however, a certain number of abscess cases, in which the most competent surgeon would be content to do a mere drainage operation as a life-saving measure.

THE TECHNIC OF OPERATING THROUGH AN ABDOMINAL INCISION IN ABSCESS CASES.

I believe in the vast majority of abscess cases that a three- or four-inch incision along the outer border of the right rectus muscle is the best avenue of approach.

Through such an incision the abscess can be very well surrounded with pads of moist gauze and, whether adherent to the parietal peritoneum or not, can be evacuated with but little danger of infecting the general peritoneum. With such a technic one can the better do complete work, that is, search out the appendix and remove it, drainage being established through a stab wound in the flank, and the abdominal incision permanently closed. I do not favor the practice of cutting down immediately over the abscess site, unless mere drainage is aimed at or the abscess fills the greater part of the right side of the abdominal cavity. Through such an incision one must trust almost altogether to his dexterity in operative manipulation, and is never quite sure that he has not broken through the wall of protective adhesions in attempting to do complete work. While it is many times possible through such an incision to pad off the abdominal cavity satisfactorily, it can be done better through the above mentioned incision. In postcecal abscesses I prefer the incision along the outer border of the right rectus muscle, unless mere drainage is practiced, when the flank incision and postperitoneal drainage may be made; or in exceptionally favorable cases reaching well down in to the pelvis, drainage through the rectum may be practiced.

DIFFUSE PERITONITIS.

The aim of treatment in beginning diffuse peritonitis should be toward the arrest of the spread of the inflammation. It is here that surgeons differ very much as to the best method of procedure. Deaver, Morris and many other prominent surgeons recommend in this class of cases immediate operation, and this is probably the most universal practice. However, Ochsner pointed out a method by which the inflammation could be arrested by the walling-in process, in probably 90 per cent. of such cases, which would place them under the same category as abscess cases. In my judgment, the Ochsner plan of treatment is based on the proper interpretation of Nature's method of protecting the peritoneum, and as a general method of treatment I believe it to be the best.

It is also my opinion that many of the reported successes from operation in diffuse peritonitis originating from the appendix in reality have been cases in which only the right iliac and middle abdominal regions were involved, the inflammation being circumscribed. Diffuse peritonitis due to an infection from the appendix is usually of the purulo-gangrenous variety, and is very likely to become limited to the lower two-thirds of the abdomen.

It is evident at operation in diffuse peritonitis and at postmortems on these cases that Nature has most usually made some effort at limiting the progress of the inflammation by the formation of adhesions of the intestines and omentum. Nature should be assisted by favoring the arrest of peristalsis and by posture, operative procedures being deferred to a later period. Such cases will not all recover, but a larger percentage, I believe, will be saved than by operative procedures during the progressive stage of the inflammation. The operative technic in these cases should be identically the same as in large abscess cases, viz., incision and establishment of drainage.

CONCLUSIONS.

1. In incipient appendicitis, until the patient is placed in the hands of the surgeon, all food and drink should be withheld and the patient nourished by the rectum.

2. Every patient should be advised of the advantages of an early operation.

3. Radical work, that is, the removal of the appendix or closure of an opening in the cecum, should be done in abscess cases, when it can be done without additional risk to the life of the patient.

4. The practice of merely draining in every abscess case should be condemned as non-surgical.

5. Operation during a progressive diffuse peritonitis will be attended with a higher mortality than the method of procedure I recommend.

6. If the physician would direct his efforts, in the treatment of appendicitis, toward the protection of the peritoneum, until he could transfer his case to the surgeon, the mortality in this disease would be greatly lessened.

7. The adoption of the more rational method of dealing with diffuse peritonitis will convert a large percentage of these cases into circumscribed peritonitis, when they can be rightly classed as large abscess cases, having the same mortality rate.

AN OPERATION FOR PYOSALPINX WITHOUT LIGATURE, CLAMP, ARTERY FORCEPS OR BLEEDING, BY OVERTHROW PROVISIONAL SUTURE METHOD.*

REPORT OF FIFTY-NINE CASES WITH ONE DEATH.

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Pyosalpinx, or pus in the tube, is the result of an inflammatory action in and about the tube, due to an infection.

ETIOLOGY.

The most frequent causes of pyosalpinx are: Abortion or miscarriage, gonorrheal infection, tubercular infection, infection with the *Bacillus coli communis*, *streptococcus* or *staphylococcus* or infection through trauma or extension to tube of an appendicitis.

PATHOLOGY.

If the tube is infected from its proximal end, the mucous membrane is congested and distended with blood, thereby encroaching on the lumen of the tube. The infection is then advanced by this condition of affairs to the ampulla and then to the distal end of tube. Each and every extension causes or will cause what is spoken of by the patient as "cramp" or shooting or boring pains in the ovary. This condition is frequently spoken of by the physician as an "ovaritis," and if the patient becomes remonstrative her case is diagnosed as neurasthenic, hypochondriac or hysteric.

* Read in the Section on Obstetrics and Diseases of Women of the American Medical Association at the Fifty-sixth Annual Session, July, 1905.

The fimbriated end of the tube is approximated by omentum, and this may become sealed against the tube and thus keep the inflammatory action within certain limits. When the tube is patulous, the infection spreads to the peritoneum and is accompanied by a local or general peritonitis. This condition tends to draw the uterus inward and downward until the distal end of the tube and ovary, in the majority of cases, is found deeply fixed in the pelvis, posterior to the uterus and filling up the Douglas pouch.

I have performed the following operation for several years: After opening the abdomen, the patient is placed in the Trendelenburg position; the bowels, if possible, are pushed back; if adherent, they can be dissected free with a dry sponge and then pushed back. The general cavity is walled off with one or two large strips of gauze. Bleeding from bowel or omentum, if any, should be sought for and vessels and tissues sutured, if necessary. The broad ligament is sought for and the finger is invaginated between the ligament and the mass and the tube partially freed at the distal end.

The index finger is then forced between the broad ligament and the tumor. A cutting needle, half curved, with No. 3 pyoktannin, is passed between the mass and the broad ligament on to the finger, and the broad ligament is tied off. Scissors are used to sever the tissue between the broad ligament and tube. The finger is still further advanced, and an overthrow provisional suture, which usually includes the ovarian artery, is taken in the broad ligament.

The separation of the mass is continued by the farther advancement of the finger; application of another provisional suture, and the severing of the mass from the broad ligament with the scissors, a little at a time. Immediately on severing the tissue the provisional overthrow suture is tightened, thus preventing hemorrhage. In the majority of cases it is well to put in the provisional Billroth suture before severing the artery. The finger is still farther advanced toward the uterus, and the broad ligament is severed as before described, following the provisional suture until the horn of the uterus is reached. The provisional suture is placed in the uterus, an elliptical incision is made, and the tube is removed from the uterus and the suture tightened. Another suture, if necessary, is imbedded in the uterus and tied. The uterus is then grasped with the hand and elevated, if possible. If not, an attempt is made to separate the adhesions directly behind the uterus, and in this way gradually to shell out the mass from before backward. It may be necessary to tie off some omentum or bands of adhesions.

I do not hesitate to operate in acute cases of pyosalpinx if the tube can be felt free in the pelvis. An anesthetic is used at the first examination. In 59 cases I succeeded in saving 51 or 52 specimens, and at a meeting of the pathologic section of the Ramsey County Medical Society I had the pleasure to show 39 specimens, all of which were intact and not opened or ruptured in any way and still containing large quantities of pus; the pus noted in the recording of my cases by my assistants and internes as a ruptured tube or ovary was found to be an extratubal or peritubal abscess in almost every instance, except tubes or ovaries that were so macerated as to tear in making a dry dissection.

My reasons for reporting the following operations in detail are the different conditions, features and complications found.

CASE 1.—Mrs. J. O. D., aged 30, American.

History.—There have been repeated attacks of pain in the right lower quadrant of abdomen. She has had a discharge of pus from the bowel on two occasions following these attacks. While under my care, she passed large quantities of pus in the urine; this condition remained for thirty-six hours during the first attack and about one day longer in the second attack. In neither case was there any pain in urination or any amount of blood that I could detect with the naked eye in the urine; the discharge was not offensive.

Operation was not consented to until the beginning of another attack, which occurred about three months after previous attack.

Operation.—I made an incision in the median line, and found the omentum adherent to the anterior abdominal wall, completely hiding from view the contents of the abdomen. I began to separate the omentum at or about the junction with the bladder; immediately beneath I found the bladder adherent to several loops of gut; I stripped off the gut and came on several large broad bands, which at first appeared to be a portion of the bowel. Finally I cut through and tied off several long strips of dense adhesions, with several pieces of omentum. This brought me to what I supposed was the tube; after separating more adherent bowel and clearing up the field of operation I opened into an abscess cavity which extended up over the brim of the pelvis to the junction of the large and small bowel; the tube was then located in its usual pathologic position and removed as before described.

Deep in the pelvis was an abscess which was completely walled off by a membrane which was semitransparent. The pus could be seen plainly, moving with each effort the patient made while breathing, and snugly encased in its capsule. I punctured the capsule with my finger, mopped the cavity dry, and inserted a long, narrow, loose gauze drain; I did not sew up the abdominal wall, excepting two sutures in the peritoneum.

There was considerable shock, necessitating injections of saline solution; strychnin, gr. 1/16, was given hypodermically.

Patient made uneventful recovery.

CASE 2.—Mary McC. Sept. 21, 1899, aged 18, domestic, single.

History.—About six months ago the patient began having pain with monthly flow, which was excessive in quantity. She says she had yellowish discharge from the vagina last winter, accompanied with pain in her side; she was confined to her bed about three weeks during this attack; at the present time there is a yellowish discharge from the vagina, which began about two weeks ago, accompanied by considerable pain in the left side. Patient has been confined to her bed for one week.

Diagnosis.—Single pyosalpinx (left).

Operation.—Three-inch incision was made in the median line; hemorrhage was slight. The right tube was cystic. The tumor was the size of hen's egg and was aspirated; right ovary was normal; neither tube nor ovary were removed. The left tube was distended with pus and densely adherent to all surrounding structures.

The tumor was aspirated and about 100 c.c. of pus evacuated; the ovary was somewhat enlarged. Adhesions were broken up and the tube and ovary removed; the stump was cauterized with the actual cautery, and peritoneum sewed over the stump. Several small cysts along the tube were opened and drained. The wound was packed with sterile gauze and partially closed with silkworm gut.

The patient received two hypodermic injections of strychnin, gr. 1/20 each, while on the table, and an enema of one quart of salt solution immediately after operation.

There was considerable shock, but the patient rallied well. She was discharged, well, Nov. 8, 1899.

CASE 3.—Miss G., aged 24, American, single. July 10, 1899.

History.—Patient complained of backache, general malaise, bearing down and localized pain in pelvis. Menstruation was irregular and profuse. She had leucorrhea, with a very offensive discharge. The uterus was retroflexed, pushed over to the left side and fixed laterally and posteriorly.

Operation.—Medium incision was made. The uterus and adnexa were in the bottom of the pelvis. The appendix was

found to cross over the brim of the pelvis and to imbed itself in the mass. An attempt was made to separate the appendix from the mass, which was successful only after removing the proximal end by cuff and purse-string method. The right tube and ovary were removed by method described; no shock; no hemorrhage. Patient left hospital, well, Aug. 12, 1899, with exception of some leucorrhea, which has since disappeared.

CASE 4.—Mrs. M. N., aged 24, American. Aug. 5, 1899.

History.—She complained of pain in both sides and was constipated. There was pain on urination. She was hysterical. The history was given me by her family physician. He said she complained of everything aching and paining.

Examination.—Examination showed gonorrheal urethritis, offensive leucorrhea and aggravated retroflexion. The finger in the vagina encountered a solid, resisting mass to the left of the median line, which proved to be the fundus of the uterus. There was a large, resisting mass in the right iliac pelvic region.

Operation.—Oöphoro-salpingectomy and appendectomy. The abdomen was opened in the median line. The appendix could be plainly seen passing downward and losing itself in a large mass on the same side. I began to free it and found an appendix 6½ inches long, adherent to the lateral and posterior walls of the uterus. The tube was removed in usual manner, after rupture of ovary, containing pus. The cavity was dried in the usual manner. Patient made an uneventful recovery and was discharged Aug. 23, 1899.

CASE 5.—C. S. was admitted to hospital Sept. 3, 1899, aged 26, single, clerk.

History.—Patient menstruated last three months previously. Ulcers were noticed on labia and on vagina. Purulent discharge was present. In July there was a general eruption all over the body, with headache and pains in the bones.

Diagnosis.—Tertiary syphilis, cystic ovaries, double pyosalpinx, specific panophthalmitis, with glaucoma adhesions.

Operation.—Double oöphoro-salpingectomy. An incision was made in the median line above the pubes. The wound bled profusely and the hemorrhage was controlled with some difficulty. Right ovary was somewhat cirrhotic and prolapsed; left ovary was cirrhotic, and tube thickened and distended. The tubes and ligaments were ligated close to the uterus. Ovaries and tubes were excised and the stumps sewed over with fine catgut. Adhesions of the broad ligament to the ovary were broken up. The wound was closed with catgut and a Halstead subcuticular suture of silkworm gut. She was discharged, improved, Nov. 24, 1899.

I examined patient about a year after operation; she had gained twenty pounds in flesh and was feeling, as she expressed it, very well.

CASE 6.—M. M. was admitted to hospital Sept. 21, 1899. Age, 28; married; housewife.

History.—The patient has always enjoyed good health. She has had two normal labors and one miscarriage two years ago. She began to have a discharge from the vagina several weeks ago, followed shortly by pain low down in the abdomen on both sides. Menstruation was regular; the last time it was somewhat painful.

Examination.—Patient was well nourished, the tongue was clear; chest, heart, and lungs were normal. There was tenderness on deep palpitation over both ovaries; the abdomen was somewhat rigid; the uterus was fixed posteriorly and deflected to the left side. A tumor was distinctly felt in the right side.

Diagnosis.—Double salpingo-oöphoritis.

Operation.—A median incision was made about three inches long, beginning one inch below the umbilicus; the recti muscles were separated and the peritoneum opened. The right tube and ovary were found thickened and prolapsed into the cul-de-sac; the ovary was cirrhotic. The adhesions were extensive, especially to the sigmoid on the left side. By separating the tube from the sigmoid, a small abscess was opened and the tube and ovary were freed. The broad ligament was tied off and stitched over with peritoneum. The tube and ovary were removed and the right tube and ovary were freed and brought up into the wound. The tube was separated from the broad ligament by overstitching with the Billroth suture and tube and ovary were removed. The cavity was dried and closed with interrupted sutures of catgut; the skin was closed by subcuticular sutures of silkworm gut. The patient made an uneventful recovery and was discharged well Nov. 10, 1899.

CASE 7.—J. D., aged 23, married, was admitted to hospital July 6, 1900, and operated on July 14, 1900.

History.—The patient always had been sickly and had a great deal of headache. She had kidney and liver trouble. Three years ago she had a very bad cold and was treated by a physician. She had diphtheria when 12 years old. On May 2 she gave birth to a child; labor was normal. She remained in bed two weeks, got up and went to her physician at his office. He made an examination and found lacerations of vagina and cervix; he said he could not operate until discharge ceased. He gave one treatment and the patient, after being up three weeks, was compelled to go to bed again. She complained of severe pain in right ovarian region. Her appetite has been very poor and bowels irregular; she had to take cathartics.

Diagnosis.—Retroflexed uterus, pyosalpinx, (double) rectocele, cystocele.

Operation.—Double salpingectomy and appendectomy. An incision about three inches long was made in the abdominal wall down to peritoneum. The peritoneum was picked up and a small incision made. Fingers then inserted and the peritoneum torn open. The bladder, uterus, appendix and intestines were found firmly united by adhesions. The appendix was picked up and found to be adherent to posterior wall of the uterus; it was removed by being tied off with catgut, and the serous membrane was then stitched over it. The adhesions were broken up between the intestines and the Fallopian tube; by so doing, the tubes gave way and allowed from two to four ounces of pus to escape into the abdominal cavity, which was sponged out with dry sponges. The tubes were separated from the surrounding structures and tied off with catgut and removed. The peritoneum was sutured with a running suture of catgut; the muscles were approximated with catgut sutures; the skin with subcuticular silkworm catgut suture. There was considerable shock and hemorrhage. Patient was discharged, well, Aug. 22, 1900.

CASE 8.—A. S., aged 34, married, was admitted to hospital July 9, 1900, and operated on July 12, 1900.

History.—Patient has had three children and has always been in good health. While going upstairs four days ago she fell and struck against a pail; she was pregnant at the time. Pain of injury seems to have been down in the left iliac region.

Diagnosis.—Pyosalpinx (left).

Operation.—Single salpingo-oöphorectomy and appendectomy. A median incision was made about four inches long. Intestines, bladder, tubes and uterus were found to be all adherent. Adhesions were broken up by dry dissection, using sponge on finger. The right tube was freed and examined; it was somewhat enlarged. It was aspirated, but, as no fluid was found, it was replaced. The appendix was found deep in the pelvis and brought up, and the serous coat was stripped back, forming a cuff. The mesoappendix was cut away and overcast with running suture of No. 2 plain pyoktannin catgut; the appendix was clamped and cut off; the stump was cauterized with 95 per cent. carbolic acid, followed by alcohol, turned in and a purse-string suture put round cuff and drawn tight; No. 2 pyoktannin catgut was used. The left tube was much enlarged and firmly adherent, deep in the cul-de-sac. In freeing the tube an abscess was opened, allowing a fluid to escape; this was sponged away, the fimbriated extremity brought out, and ovary and tube cut away. Small cuts were taken and each one followed by overcasting the stump with a running button-hole stitch. Skin wound was closed with subcuticular stitch of silkworm gut. The patient was given an enema of warm oil and whisky. Recovery was uneventful. Patient was discharged July 19, 1900. No symptoms of miscarriage.

CASE 9.—S. C. was admitted to hospital July 15, 1900, married, aged 20.

History.—Patient was well until one and one-half years ago. She had a child at full term previous to admission to hospital. She remained in bed three weeks after confinement, since which

time she has been well up to one week ago, when she began to have pain in the left lower abdomen, with weakness and loss of appetite. A slight bloody discharge from the vagina was present. First menstruation since confinement occurred one week ago; it was profuse and painless and lasted four days.

Diagnosis.—Lacerated perineum and cervix; postparametritis; left tubal abscess; subinvolution; granular endometritis.

Operation.—Left salpingo-oöphorectomy. There were very extensive adhesions found between the left ovary and tube and intestine; they were tied off and removed; the abscess was aspirated. The left ovary and tube were removed by ligaturing, beginning at the horn of the uterus; the tube was excised and the peritoneum sewed over stump and raw surface. Hemorrhage was severe and was counteracted by hypodermoclysis, strychnin and rectal enema. Shock was very severe. About two ounces of pus were removed August 10. Lobar pneumonia developed in the upper left lobe. Patient was convalescent August 22, and was discharged, well, Aug. 29, 1900.

CASE 10.—A. Y., aged 21, single, was admitted to hospital May 9, 1901, with a diagnosis of right pyosalpinx.

Operation.—The right tube and ovary were found to have fallen down in the cul-de-sac of Douglas and to be lying somewhat behind the left tube and ovary. The right tube was enlarged to about the size of a man's finger; the ovary was somewhat enlarged and lobulated. The broad ligament was tied off with pyoktannin catgut and the stump stitched across, as the tube and ovary were removed with scissors. The vermiform appendix was found on examination to contain a small particle about the size of a grape seed. The mesoappendix and appendix were tied off and the appendix removed, the stump being stitched over by the cuff method. The peritoneum was dissected off and rolled down. The appendix was cut off and cauterized with actual cautery; the cuff was then stitched over the stump and a few more stitches of catgut put into the mesoappendix and vermiform appendix stump. There was some hemorrhage from a small artery in the mesoappendix; this was tied off with catgut; the peritoneum closed with a catgut suture, muscles with the same, skin and superficial fascia, subcuticular silkworm gut. There was slight hemorrhage, but no shock. Patient was discharged, well, Aug. 26, 1901.

CASE 11.—A. H., aged 28, married, was admitted to hospital Aug. 4, 1903.

History.—Patient has had three children; two are living. She has had two miscarriages; the last one occurred about two years ago. Last child was born in 1897. About four months ago she had chills and severe headache; these chills were of short duration at first, but are longer now and more frequent; she does not have as much headache now as a few months ago; she says she has had a pain in the left iliac region for the past ten years and pain in region of spleen, which radiates toward the back, produced by pressure in the first place. She complains of pain starting in the left iliac region and radiating down the inner side of the leg to the toes, and also complains of pain in right lumbar region for the past two weeks. Menstruation has not been regular; sometimes it is early and sometimes late. In July there was not much, but in August the flow commenced a week and a half sooner than it should and lasted just two weeks. The amount was excessive in quantity, dark in color, containing clots.

Diagnosis.—Salpingitis, pyosalpinx.

Operation.—Salpingo-oöphorectomy. An incision was made in the median line, about 2 inches below the umbilicus and extending 2½ inches toward the pubes; the fibers of the rectus muscle were separated and the fascia, thus exposing the peritoneum, which was grasped with dissecting forceps and an opening made the size of the external incision. Numerous adhesions were broken up and the uterus and left tube were found adherent to the bladder; the left tube contained an abscess and about two ounces of pus aspirated. The abscess was of the tubo-ovarian variety, and, the ovary being much involved, it was deemed advisable to perform salpingo-oöphorectomy. A suture of pyoktännin catgut, No. 2, was employed and a quilt suture was used to stitch the broad ligament and to control hemorrhage. Great care was necessary so as not to injure the bladder, as it was closely united to ovary, tube and uterus; on the latter it was united nearly to the center of the fundus. The intestines were walled off by sponges to avoid general infection of peritoneal cavity; the cavity was thoroughly swabbed out and the peritoneum sutured with pyoktannin catgut, No. 2, quilt suture. The fascia and the muscles were approximated with like suture material and like stitch, the skin was closed with subcuticular stitch of silkworm gut and a dry gauze dressing was put over wound. Patient was discharged, well, Aug. 29, 1903.

CASE 12.—K. P., aged 22, single, was admitted to the hospital Aug. 20, 1900.

History.—The patient was well till three years ago; since then she has been in hospital twice with present trouble. Three years ago she awakened at night with severe pain in the right iliac fossæ; she had chill after chill, followed by profuse sweating; she vomited, but got better in the morning; she remained in bed three days and then came to the hospital, attended by her physician; she improved and went home; six months later she returned to the hospital with the same trouble; in two weeks she again went home, since which time she has never been well. There were dragging pains in the right side; painful urination and defecation. A vaginal discharge was present, white and watery at first, later becoming thick and yellow.

Diagnosis.—Left pyosalpinx; anteversion of uterus.

Operation.—Salpingo-oöphorectomy. Right ovary was cystic. The tube was excised, tied at end and sewed up with catgut; one ligature was inserted. The left ovary and tube were found diseased and bound down to the uterus and intestines by very extensive adhesions. The left ovary and tube were removed. On examination the right ovary was found cystic and was resected. Appendix was normal. There was no hemorrhage nor shock. Patient was discharged, well, Sept. 10, 1900.

CASE 13.—E. L., aged 33, widow, was admitted to hospital Aug. 26, 1902.

History.—About two months ago the patient says she lifted hard and felt as if something gave way within her abdomen. For two or three days after this happened she had burning pain across the lower abdomen. She says she had a fever and pain which gradually grew worse. About a week later she began to vomit; the vomiting caused her a great deal of pain. She says that pains are sharp and that they are getting worse and worse; she has not slept well at night for past two weeks. Abdomen was swollen and very tender. She has been regular in her menses, but flowed more than usual. She has had considerable pain during these periods, but more of late. She has not menstruated for two weeks and had a slight vaginal discharge day before entering hospital. She had a great deal of pain in the region of the bladder and was unable to urinate for two or three days. She was catheterized several times.

Diagnosis.—Gonorrheal salpingitis; tubo-ovarian abscess.

Operation.—Double salpingo-oöphorectomy. The fundus of the uterus was found bound down to the intestines with adhesions which had to be dissected away. After the fundus was free the tubes and ovaries were removed. The operation was attended by considerable hemorrhage. There were adhesions to bowel and rectum. The bowel was opened into by separation of adhesion. The wall of the abscess by pressure had produced atrophy of the wall of the bowel; in fact, the mucous membrane was all that prevented opening of the abscess into the bowel. The gut was resected and a Murphy button applied. The patient was discharged, well, Sept. 30, 1902.

CASE 14.—D. E., aged 18, single, was admitted to hospital Aug. 23, 1902.

History.—The patient had had diphtheria and measles. She had had rheumatism and was confined to bed all winter. About a month ago she was taken ill with pain across the lower abdomen. Abdomen was tender and somewhat swollen. She said that pains seem to go down into legs and that during the attacks of pain she vomited several times. Pains were sharp and her head and back ached. Those symptoms, except the vomiting, kept up more or less until she entered the hospital. She said that her hands and feet are always cold and clammy. She does not sleep well.

Diagnosis.—Gallstones, gonorrhea, pyosalpinx, appendicitis.

Operation.—Laparotomy; salpingectomy; appendectomy.

The appendix was found curled on itself and adherent to the uterus. The left Fallopian tube was found to be inflamed and reddened. It was taken up with a purse-string suture of pyoktannin catgut, first being freed from intestinal adhesions. The tube and ovary were excised; the broad ligament being tied ahead of them, with a running suture of pyoktannin catgut. The appendix was freed from its mesentery and the serous membrane incised circularly with a knife about one-quarter of an inch above the attachment to the intestine; it was ligated close to this attachment and cut off where the circular incision was made. The stump was cauterized with carbolic acid and alcohol; a purse-string suture of pyoktannin catgut taken round it and the stump inverted and suture drawn. The patient was discharged, well, Sept. 30, 1902.

CASE 15.—A. W., aged 28, single, was admitted to hospital July, 1903.

History.—In the past three years she has been troubled with pains in her pelvis. She began to menstruate and has had discharge ever since. She does not flow much during the menstrual period. About a week previously she began to have chills and sharp pains in the lower part of abdomen. She was in bed two days; then got up and pain began in back, which at last localized to one spot with a burning sensation. This was on the right side. Bowel movements caused pain.

Diagnosis.—Pyosalpinx and ovaritis of right side.

Operation.—Laparotomy: Salpingo-oöphorectomy. An incision was made in the median line, about four inches long, between the umbilicus and the pubes. Intestines, right tube and uterus were matted together in Douglas cul-de-sac, and the appendix was adherent to the tube. Adhesions were gently broken up. The tube was twisted and kinked, being very thick and irregular nearest the uterus; a pyoktannin, No. 2, ligature was passed round it, near the uterus, and tied and the uterine attachment cut. The ovary was grasped with a pair of forceps, but its pedicle was torn and the ovary was removed and torn. The pedicle was sutured with No. 2 pyoktannin catgut and the suture continued along the broad ligament at the uterine attachment, which was cut loose. The suture was continued by a needle passed through a loop of the preceding stitch. The mesoappendix was cut and then sutured in the same way as the broad ligament, and the peritoneum of the appendix was incised all around at the base and folded down as a cuff; the appendix was ligated about one-quarter of an inch below with the same kind of catgut and then cut a short distance from ligature, the end being touched first with 95 per cent. carbolic acid and then with alcohol. The open end was closed with No. 0 pyoktannin catgut and the peritoneal cuff folded over the end and sutured with the same. The peritoneum was closed with continuous suture, No. 2, and fascia and muscles in the same way. The skin was sutured with subcuticular silkworm gut. After closing it the line of suture was irrigated with hot normal salt solution. The patient was discharged well Aug. 22, 1903.

CASE 16.—A. F., aged 22, married, was admitted to the hospital June 24, 1903.

History.—The patient has had one child, which died when 4 days old. About two weeks ago she had severe pains in the lower abdomen on both sides. About five days ago pains on left side stopped, but pain on right side persists. She says that when she urinates she has bearing-down pain on right side.

Diagnosis.—Double pyosalpinx (gonorrhea).

Operation.—Laparotomy: Salpingo-oöphorectomy. The abdomen was opened in the median line. On opening the peritoneal cavity, a large mass, consisting of adherent omentum, was brought into view. On investigation of the right ovarian region, another mass about the size of the first was discovered bound down with firm adhesions and lying more in the abdominal than in the pelvic cavity. This mass was separated from surrounding intestines, which later were walled off with gauze pads. Omental and intestinal adhesions were tied and cut. The pedicle of the mass was transfixed with needle, tied off with pyoktannin catgut and cut. The mass was lifted up, but ruptured before it could be removed. It proved to be a tubo-ovarian abscess, containing almost a cupful of yellowish pus. The pus was sponged out; the stump and edges of the broad ligament were brought together and sutured, a running suture of catgut being introduced. These stitches tore out and later had to be reintroduced. The left side was investigated and another tubo-ovarian abscess was found and treated in the same way, except that a portion of the ovary was dissected from the mass and allowed to remain. The pelvic and abdominal cavities were sponged dry; the peritoneum was closed with catgut. Muscle, fascia and aponeurosis were closed with Billroth's chain suture, pyoktannin catgut being used. The skin was closed with subcutaneous stitch of medium silkworm gut. Patient was discharged, well, Aug. 31, 1903.

(To be continued.)

DIAGNOSIS OF AFFECTIONS CHARACTERIZED BY INTESTINAL OBSTRUCTION.

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Since the clinical phenomena presented by incomplete or partially obstructive lesions in this tube are referable, rather to the nature and location of the lesion than to obstruction, these affections will not be studied in this paper.

Complete obstruction to the passage of the contents of the intestinal canal is generally characterized clinically by the symptom-complex of an acute affection. The causative lesion, however, may be of acute (sudden) or chronic (slow) development. In accordance with the underlying clinically recognizable etiologic factor, the different varieties of acute intestinal obstruction (ileus) may be classified as (1) dynamic ileus and (2) mechanical obstruction.

1. *Dynamic Ileus.*—This is due to peristaltic paralysis either of the entire intestine or of a segment of gut and is typified by the absolute intestinal obstruction incident to general peritonitis. It is not rarely due to mechanical and chemical irritation of the peritoneum, such as is incident to extensive operations about the mesentery, vigorous toilet of the peritoneum, prolonged rough handling, chilling and exposure of this structure and was common in the days of antiseptic abdominal surgery under the use of carbolic acid spray and other antiseptics in the peritoneal cavity. Contusion of the peritoneum due to external violence is a cause. It may also result from excessive meteorism due to enteritis. Intestinal paresis may result from splanchnic and spinal nerve degeneration, cord injury, and is a common terminal condition often directly causative of death in certain systemic diseases, particularly pneumonia, uremia, meningitis, typhoid fever and others, and especially when associated with delirium, unconsciousness, coma and excessive pain and other symptoms which at the same time divert the attention from the abdomen and predispose to constipation and to meteorism. In mild form transient paretic ileus is noted after the removal of large abdominal tumors and ascites, and is the rule after childbirth. The temporary reflex intestinal paresis incident to injury of a testicle, operative procedures about the anus and rectum, during a paroxysm of severe renal, ovarian, biliary or pancreatic colic, and often conspicuous in the symptomatology of these affections, is non-progressive is severity and transient. In many cases of mechanical obstruction, particularly when due to strangulation, there may be initial reflex paresis of the entire gut, though the proximal portion soon recovers and becomes hyperactive against the strangulated para-

lyzed segment which constitutes a mechanical obstacle to peristalsis.

2. *Mechanical Obstruction.*—This may result from strangulation of a segment of intestine or its mesentery through occlusion of its blood vessels, the strangulated portion of gut constituting an obstacle to or solution of continuity of the peristaltic wave. It is typified by the ileus incident to mesenteric embolism and thrombosis, torsion of the mesentery, constriction of the blood vessels by bands, adhesions, hernial orifices and traction, and the early stages of incompletely occlusive invagination (intussusception). Mechanical occlusion, either by obturation or stenosis of the lumen of the intestine, is the typical cause of mechanical obstruction. Obturation results from impaction of gallstones, entoroliths, fecal material and innumerable varieties of foreign material introduced either by way of the mouth or *per anum.* Stenosis may result from stricture formation, cicatrical or neoplasmic in character, constriction from without by bands of peritoneal adhesions, any abdominal or pelvic tumor, distended and displaced organs and finally volvulus (torsion) or angulation (kinking).

I. DYNAMIC ILEUS.

Cardinal symptoms: (1) In all cases the signs of pseudoperitonitis or peritonitis are present and coincide with or antedate those of obstruction. (2) Absolute constipation to both feces and flatus exists, and with this (3) absent peristalsis. (4) Pernicious vomiting, becoming stercoraceous in character, supervenes. (5) Progressive uniformly distributed abdominal tympany becomes extreme. (6) Pain, at first, is that of the causative factor. As distention increases, general abdominal discomfort, costal breathing and shortness of breath are noted. These are ameliorated by belching of gas and evacuation through the rectal tube. True intestinal colic does not occur with absent peristalsis, though this symptom may precede those of obstruction. Other forms of colic must not be mistaken. When peritonitis is the cause (and this is the typical and most important variety of dynamic ileus) the pain of this affection antedates the signs of obstruction and continues till toward death. (7) Constitutional depression is generally conspicuous. Shock may exist as a coincident symptom or may be absent. (8) The urine is scanty, concentrated and contains an excess of indican if the condition is as much as twenty-four hours in duration.

II. MECHANICAL OBSTRUCTION.

The signs common to mechanical ileus may conveniently be enumerated in two groups, (A) strangulation; (B) obturation.

A. Strangulation Ileus: The signs of this condition are divisable into those of (*a*) strangulation *per se,* (*b*) peristaltic obstruction and intestinal distension, (*c*) gangrene of gut, (*d*) peritonitis.

(*a*) Strangulation *per se.*—(1) Sudden, violent, agonizing general abdominal pain is due to nerve irritation; (2) persistent nausea and vomiting are reflex in origin; (3) profound shock is noted; (4) peristalsis is commonly reflexly diminished in intensity or paralyzed. To these is soon added: (5) urgent desire to defecate, often to the degree of tenesmus. One or two good bowel movements may or may not occur, mucus and often blood are later ejected.

(*b*) peristaltic Obstruction and Intestinal Distention. —(6) Constipation becomes absolute to both feces and flatus; (7) nausea and vomiting increase in severity, becoming finally stercoraceous. (8) Intestinal tympany is first noted in the segment of gut strangulated, later in all the intestine above this seat. Distention of the distal portion of the bowel does not occur. (9) Exaggerated peristalsis is often visible, always audible as tumultuous sounds. (10) Pain is distinctly colicky in character and presents remissions and exacerbations in intensity.

(*c*) Gangrene.—With this there is: (11) shock or collapse; (12) diminution, often subsidence of pain; (13) enfeebled but still present peristalsis; (14) foul breath, coated tongue, headache, rise of temperature to normal or slightly above. These are all due to absorption of toxines (stercoremia).

If unrelieved these symptoms are soon followed by:

(*d*) Peritonitis—This is caused by intestinal permeability, perforation or rupture, and is heralded by (16) sharp pain (may be absent); (17) reflex rigidity; (18) fever; (19) leucocytosis; (20) all the signs of dynamic ileus (see above); (21) soon the evidence of free fluid in the peritoneal cavity; (22) peritoneal facies.

B. Obturation Ileus: The signs of this are divisible into local obstruction to the lumen of the gut, proximal distention, stercoremia (autointoxication), intestinal rupture. In this condition we note: (1) Constipation. This is sudden and generally absolute, though the lower bowel may be emptied. False diarrhea may occur. (2) Intestinal colic. (3) Exaggerated peristalsis is visible and audible. (4) Proximal progressive tympany; and (5) nausea and vomiting are all pronounced, progressive and finally vomiting becomes stercoraceous. (6) Foul breath, coated tongue and moderate rise of temperature. (7) Finally, the signs of intestinal rupture are engrafted and the clinical picture radically altered. Distention becomes uniform and peristalsis paralyzed. The patient, if conscious, may have felt a sensation of rupture. There is frequently a history of the administration of cathartics.

Given a case of mechanical intestinal obstruction, the following table will be useful in differentiating strangulation from occlusion:

TABLE FOR DIFFERENTIATING STRANGULATION FROM OCCLUSION.

STRANGULATION.	OCCLUSION.
A.—PAIN.	
Generally the first symptom. Sudden, violent, continuous, little chance to progress in severity, may subside with onset of gangrene. Due to nerve irritation.	A later symptom. Less sudden, less violent at first but progressive and paroxysmal. Due to intestinal spasm (colic).
B.—VOMITING AND NAUSEA.	
Initial symptoms, reflex in character, less definitely stercoraceous. Death may occur before feces are vomited.	Later symptom, due to overfilling of the canal. Stercoraceous material is sure to be noted in late stages.
C.—SHOCK.	
Sudden, pronounced and rapidly progressive.	May not be noted early and is of gradual development. Due to pain, autointoxication, sleeplessness, starvation and exhaustion.
D.—BOWEL ACTION.	
Peristalsis in earliest stages is reflexly diminished. False diarrhea with mucus and blood in passages may be noted in mesenteric embolism and in intussusception.	Peristalsis progressively increased from the beginning. False diarrhea is less rare and may be conspicuous. No blood in passages though watery mucoid material may be ejected.
E.—INTESTINAL TYMPANY.	
Noted first in the loop of gut strangulated and then becomes general.	No circumscribed distention of loop, distention is general from the first.
F.—AUTOINTOXICATION.	
The signs of this are obscured by those of gangrene and peritonitis.	These signs are conspicuous long before peritonitis develops.
G.—CLINICAL COURSE.	
Always violently acute and rapidly followed by gangrene and peritonitis unless relieved.	May be acute, often chronic, with recurrent exacerbations dependent on the cause (see below). Peritonitis is late, gangrene may not occur.

DIAGNOSIS OF CAUSE OF MECHANICAL OBSTRUCTION.

A. STRANGULATION.

In all cases of sudden abdominal pain with violent vomiting and constipation, especially after some sudden muscular effort as heavy lifting, all the hernial orifices must be examined. In one known to have a hernia, strangulation is the most probable cause.

Strangulated Hernia.—The obstruction symptoms are those of strangulation ileus (see above). Pain may be felt at the point of strangulation, the hernia becomes painful, tender, enlarged, generally irreducible, dull to percussion, the impulse on coughing is lost. If only the omentum is strangulated, constipation is less absolute. Sudden cessation of pain points to gangrene or to reduction. Strangulation must be differentiated from incarcerated and from inflamed hernia. In neither of the latter is impulse on coughing lost. In incarcerated hernia the gastrointestinal signs are of a mild imperfect obturation of the bowel. In inflamed hernia the signs are of local inflammation, with perhaps localized peritonitis, but never positive ileus.

On excluding strangulated external hernia the signs referable to the internal hernial orifices should be sought. Diaphragmatic, obturator, sciatic, duodenojejunal and retroperitoneal hernia must be suspected.

Diaphragmatic Hernia.—In this there are, in addition to the signs of strangulation ileus with little or no abdominal distention, the signs of suddenly developing pneumothorax, generally on the left side, without pulmonary or pleural cause. Vomiting is never fecal. Obturator and sciatic hernias are characterized by pain in the region of these orifices, often referred down the thigh. Tenderness may occasionally be elicited on rectal examination. These, together with retroperitoneal, duodenojejunal and other forms of internal hernias, are generally unrecognizable save as strangulation ileus.

Strangulation and Occlusion by Bands or Adhesions.—In about 70 per cent. of patients there is a history of previous peritonitis (due to appendicitis, salpingitis or previous abdominal section) though this may have to be interpreted from previous attacks of colic, etc., rather than by knowledge of the patient. It is extremely rare in childhood. The signs are of strangulation and mechanical ileus, with complete or incomplete occlusion (see above). Constipation is absolute; there is, as a rule, no tenesmus, nor is bloody mucus passed from the empty rectum. Stercoraceous vomiting is late. Distention is gradual and central (involving chiefly the small gut). A fixed, distended paralyzed loop of intestine may be discovered. The colon is apt to be empty and collapsed, causing lateral flattening as contrasted with central distention.

Mesenteric Embolism.—This form of obstruction is characterized by the signs of strangulation ileus, with intestinal hemorrhage, soon free fluid in the peritoneal cavity and occasionally a palpable blood tumor between the layers of the mesentery. There may have been no previous disease of the intestine and no signs of portal engorgement. There must be a source of embolism, i. e., cardiovascular disease, generally valvular in character, and signs of simultaneous embolism in other parts (lungs, spleen, joints, etc.) must be sought.

Intussusception.—In this affection the signs of strangulation ileus predominate, even though there be complete occlusion of the lumen of the canal. It is almost confined to children, appearing in the midst of perfect health, though dysentery and straining diarrhea may precede and predispose to the condition. Extreme meteorism is exceptional. Flatness in the region of the colon may be noted and in this situation a soft tumor may often be palpated. In rare cases the tumor may be of sausage shape, but this must not be expected. Occasionally the invaginated bowel may be palpated in the rectum or sigmoid. This must not be mistaken for the indurated circular rings incident to hypertrophy of the circular layer of muscle in the wall of the rectum attending chronic dysentery. Tenesmus is generally conspicuous, vomiting is exceptionally absent.

Volvulus is almost confined to individuals past middle age, generally the subject of chronic constipation. The large intestine is the portion involved. The sigmoid (left flank) is commonly the seat of a rounded, tympanitic, quiet tumor, and proximal intestinal distention rapidly becomes extreme. The signs are those of mechanical obstruction and constipation is absolute. Diarrhea, even of the false variety, is exceptional and passage of blood is rare. Tenesmus is common. Vomiting is occasionally absent.

B. INTERNAL OBTURATION.

The most common cause of this is fecal impaction. There are the signs of atony of the bowel. The patient is generally anemic and the victim of chronic gastric catarrh. Constipation for days before the onset of acute symptoms is the rule. The signs are of less rapid onset. Proximal distention and hyperperistalsis are marked. A doughy tumor may be palpated in the colon; rectal examination generally discovers a mass of hardened feces. There may be tenesmus and false diarrhea incident to irritative colitis (stercoraceous) or to channeling of the fecal mass. A high enema is generally curative.

Gall-stone Impaction.—This is rare. It occurs in individuals of gall-stone age and generally a history of cholelithiasis may be elicited. The signs are of mechanical occlusion. In rare instances a hard tumor may be felt in the situation of greatest pain. Should this tumor be made to alter its position in the gut or move downward spontaneously the diagnosis may be justified. A fluoroscopic examination may be useful, but not conclusive as a diagnostic measure. The signs may remit in intensity, and spontaneous passage of the stone in the large intestine is curative.

Impaction of Enteroliths.—This is causative of internal obturation. The diagnosis can be made only in rare cases, in which the mass can be palpated *per rectum*. *X*-ray examination may be positive or negative. Impaction of *other foreign bodies* can be recognized only when a positive history is obtainable or the material can be shown by *x*-ray examination.

Obstruction by Stricture Formation.—The diagnosis of this as a cause depends on diagnosis of the stricture. The signs are those of mechanical ileus. Obstruction occurs always in the large bowel and toward the anus. Syphilitic and tubercular stricture are found in the rectum and sigmoid. Cancer occurs at one of the curves. Constipation is rarely absolute. Mucus and blood in the fecal matter is frequent. Pain on defecation is present when the disease is located in the rectum or sigmoid.

Congenital Obstruction.—This is caused by imperforate anus, rectum or upper bowel, or by fistulæ between the gut and bladder, uterus or vagina. The symptoms of obstruction occur a few hours after birth. If the anus is imperforate the perineum bulges when the child cries. If the anus is formed a finger in the rectum notes bulging higher up in the pelvic cavity. If a fistula exists between the bowel, bladder or uterus, meconium may be discharged through these channels.

STUDY OF INDIVIDUAL SYMPTOMS.

While in many cases of intestinal obstruction the exact nature and location of the lesion can not be positively recognized before operation, the study of individual symptoms is helpful.

Pain.—This is due first to nerve irritation, later distention and congestion, finally peritonitis. It is generally first referred to the umbilicus, rapidly becoming general. It is colicky in character when obstruction is incomplete (due to spasm); constant and of short aching character when occlusion is complete (due to distention and congestion). Extreme tenderness and true rigidity, being due to peritonitis, are rare in early stages.

Collapse and Vomiting.—In acute cases these signs are due to nerve irritation, and when early severe they point generally to high obstruction, tight strangulation or pinching of the omentum. When occurring late, toxemia is the main cause and low obstruction is suspected. Frequently repeated, easy vomiting, with moderate uniform distention and oliguria, point to high obstruction. True fecal vomiting always means obstruction either in the lower ileum or colon or paralysis of the bowel from peritonitis. When occurring later, less urgent and slowly becoming stercoraceous, while abdominal distention is great, low obstruction or peritonitis is suspected. When obstruction is in the transverse colon the right loin is more distended than the left.

Constipation.—When this is absolute, even to flatus, it means complete obstruction and points to volvulus, acute strangulation by bands of adhesions or at a hernial orifice. In other causes of acute obstruction constipation may be incomplete. Tenesmus, with the passage of mucus and blood, generally points to location at least below the splenic flexure in individuals in middle age or past; to intussusception in children.

Central Distention with Flattening of the Loins.—This sign suggests a lesion of the small gut. Great lateral distention points to the transverse colon or sigmoid as the seat of disease. The greatest tympany is always above the obstruction.

Visible Peristalsis.—Hypertrophy of the muscular wall of the gut is indicated by this sign and is rare in acute obstruction. In all forms of mechanical ileus, peristalsis is greatly exaggerated on auscultation until peritonitis develops.

Rectal Capacity.—When the obstruction is at or below the sigmoid rectal capacity is diminished to one or two pints; when above this point the rectum may hold as many quarts.

A history of biliary colic suggests gall-stones as the cause; chronic constipation suggests impacted feces; previous peritonitis causes constriction from bands; tuberculosis, syphilis and dysentery cause obstruction by cicatricial contraction of healed ulcers. Typhoid ulcers do not constrict the gut.

In children the cause is most frequently intussusception. In middle and old age volvulus, bands and malignant disease are the causes. A doughy tumor in either colon points to fecal impaction, and this in every case must be excluded. In all cases the hernial orifices and rectum must be examined. Abdominal tumors must be sought. Often laparotomy is necessary to diagnose the cause positively.

Diaphragmatic hernia may give no abdominal distention, but signs of dyspnea, etc., aid the diagnosis. They must not be mistaken for pneumothorax.

DIFFERENTIAL DIAGNOSIS.

Mechanical obstruction must be differentiated from all forms of acute dynamic ileus. Particularly that due to torsion of the spermatic cord, acute epididymitis, injury of the testicle, violent paroxysms of ureteral colic (Dietl's crises). In all these the ileus is transient, being due to pain and is non-progressive. Acute pancreatitis, perforation or rupture of hollow viscera, rupture of an ectopic gestation sac, splenic infarction must not be mistaken.

All forms of intestinal obstruction must be differentiated from acute appendicitis, tabetic crises, acute dilatation and volvulus of the stomach. The pain and often bloody diarrhea attending visceral manifestations of the acute erythematous skin affections (Osler's disease) must not be mistaken for intussusception nor for mesenteric embolism.

Acute dilatation of the stomach has been observed after injuries sufficiently severe to cause paralysis of gastric motility, and in mild degree is seen as a result of paralytic overdistention. The cardinal sign is enormous distention as determined by physical examination. There are epigastric pain and tympanitic tumor. Vomiting occurs from overflow, but when the distention is gaseous from motor nerve paralysis this sign may be absent. Regurgitation of gas occurs and is productive of relief. The affection in severe form is extremely rare.

A few cases of volvulus of the stomach are on record. It is characterized by acute agonizing abdominal pain, most severe in the epigastric region, accompanied by shock, persistent violent nausea, with retching and vomiting of small quantities of material from the stomach. A tense tympanitic tumor in the epigastrium may or may not be discovered. Vomiting is never stercoraceous and constipation is not in any way characteristic.

Acute pancreatitis is characterized by sudden, violent, agonizing, shocking pain, most severe in the upper abdomen, attended by severe reflex vomiting. Abdominal distention rapidly occurs, beginning in the epigastric region, soon becoming general. There is epigastric rigidity and tenderness, and often if these two signs can be overcome a deep-seated mass may be palpated. Constipation generally exists at least temporarily, but is not absolute, and can be overcome. Steatorrhea is a later sign, glycosuria may or may not occur. There is generally moderate fever in spite of shock, and if the latter should subside the temperature rises higher. Dyspnea and cyanosis are often observed. Slight jaundice from co-existing catarrh of the biliary passages may be present. Unrelieved there occurs rapid gangrene, peritonitis and death.

The subjects affected are generally males about middle life who have suffered with chronic dyspepsia or obstruction biliary disease. Slight traumatism may be the exciting cause. Abdominal section discovers fat necrosis in the mesentery if the condition is of twelve or twenty-four hours duration (?).

Acute pancreatitis must be differentiated from mechanical intestinal obstruction, biliary colic, suppurative cholecystitis, rupture of the gall bladder, stomach, intestine and other abdominal organs, acute appendicitis, torsion of an ovarian cyst or spermatic cord, injury of the testicle, tabetic crises and all abdominal affections characterized by acute agonizing pain attended by shock.

506 East Grace Street.

Medicine.—Osler says that medicine is the only world-wide profession following everywhere the same methods, actuated by the same ambitions, and pursuing the same ends.

THE THERAPEUTICS OF LUPULIN.*

THOMAS F. REILLY, M.D.
NEW YORK.

It is not my wish to call your attention to any new chemical product of coal tar nor to any of the modern medicinal agents that are guaranteed to cure all diseases, but rather to refresh your memories as to some old and, to myself at least, new properties of one of the oldest agents in the materia medica.

The history of the use of lupulin as a medicinal agent dates back as far as the oldest medical literature. Up to the early part of the last century it was used for almost every pain or disease. Before the discovery of the iodid it was considered almost a specific for scrofula, struma and the various skin diseases. In 1852 it was resurrected by the surgeons of the French genito-urinary school, and then for the first time came under the critical eye of modern clinical observation. After a few years of glory and grand enconiums it sank, at least as far as the literature is concerned, into complete oblivion.

Lupulin occurs as minute yellow granules at the base of the scales of the hop. Under the microscope this is seen to consist of a glandular mucus. These granules are greasy to the touch, are inflammable and emit a peculiar odor. According to recent investigations, they contain lupulinic and humulic acids and a volatile oil. The bitter taste is due to amorphous hopresins rather than to alkaloids. The aroma is due to volatile oil. Much of the disrepute into which this agent has fallen is due to the poor quality of the lupulin employed. Only that derived from the best Bohemian hops (Saatz) is of any service. It must be fresh and not exposed to light or heat, otherwise it is inert.

The active principle is closely related to valerianic acid. The resinous oxidation product of lupulinic acid is inimical to the growth of the lactic acid, but has no effect on the butyric ferment. Research with the object of determining the exact chemistry and also the physiologic action of this agent is at present being conducted by Dr. Stern and myself at the Institute for Medical Diagnosis and Research. This will be reported on at a later time. When taken into the body by the mouth, lupulin gives a sense of lively warmth, first in the epigastrium and later over the whole abdomen. It also acts as a mild diuretic. In some individuals it lowers the pulse rate from 10 to 20 beats a minute.

The two principal results that I found to be fairly constant following its use are the production of sleep and the relief of pain. The use of hops in some form or other as a sleep-producing agent is as old as mankind. The employment of hop tea is well known to most of you, and every one knows that beer will often produce the same result. The ancient beers did not contain lupulin. In England from 1050 to 1530 its use in beer was prohibited, presumably on account of its sleep-producing qualities. I have found that lupulin in doses of 20 grains repeated in a half-hour, acts as a mild somnifacient. It is of especial value in the sleeplessness or nervousness following a mild debauch. It then acts nicely on the digestive organs, as well as on the tremor and restlessness. In such cases it may be combined advantageously with tincture of capsic. The bitter taste has this peculiarity in that it does not persist in the mouth as is the case with most bitter agents.

As a general pain-relieving agent it is to be classed with the milder anodynes. It frequently relieves intestinal pain when not due to peritonitis. In the colics of children it is of great service. Those who have employed it in the painful conditions accompanying acute prostatic disease speak very highly of it. In neurasthenia and hysteria it has a calmative influence, lessening the irritability and often promoting sleep. It frequently relieves the occipital headache and pains that so often accompany these ailments. The menstrual pain and backache of these patients, when not associated with pathologic lesions, are generally relieved if it be given at frequent intervals. The French genitourinary surgeons extol to the skies its virtues as a preventive of seminal emissions and of chordee.

The use of a hop poultice as an anodyne is in general use among the laity, but I can not convince myself that it has any especial value. When given internally lupulin is best administered in capsule form. For children the powder may be mixed with sugar and is then readily taken. Aromatic spirits of ammonia forms a good vehicle when it must be given in liquid form. The officinal tincture is bitter and is not a satisfactory way of administering it. The dose varies from 10 to 60 gr., repeated every half-hour. In case of gastric intolerance suppositories may be employed. As a pain-relieving agent its field of usefulness falls in the same class as that of viburnum prunifolium and valerian. It is somewhat more active than either, and we avoid the disagreeable smell and taste of these two agents. In children it can generally be substituted for opium. In old people with advanced renal disease it can often supplant an opiate when a narcotic is necessary.

In this era of a high-tension civilization the practitioner is not infrequently brought face to face with the treatment of pains and aches and insomnias which are not in themselves severe and do not have any organic disease as a cause. These patients are neurotic and high strung and are not suffering enough to demand the use of an opiate, and yet in these very people habits are easily formed. The coal tar series of the past decade has seemed the surest way out of such a dilemma. The laity know it as well as we do and act accordingly. Now that the formation of a coal-tar product is generally recognized, it will probably be a major problem in the next generation. Any one who has seen the cyanosis, palpitation, etc., following the use of any of these agents in some people must conclude that they are not in any case without some harm, however slight it may be. In many of the cases described above in which we are tempted to use the coal-tar series, we may substitute lupulin and we may go home and sleep soundly, confident that the patient will have been, in a measure, relieved and that he will not be found dead in bed the next morning as has not infrequently happened when an acetanilid powder has been taken to soothe his nervous complaints.

DISCUSSION.

DR. W. C. ABBOTT, Chicago, said that Dr. Reilly's recommendation which gives us something tangible out of our own hop fields to substitute for the graft on the American people that comes from the dye works of Europe ought to be grasped by every one in this country. Dr. Abbott says that he has given many doses of acetanilid, and every time he knew he had done wrong in giving it; but sometimes one judges of a remedy as to whether it will do for that time and occasion more good than harm. Dr. Abbott desires to be regarded as being strongly opposed, not only on principle, but from a pure scientific therapeutic standpoint, to the use of any and all coal-

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Fifty-sixth Annual Session, July, 1905.

tar derivatives when it is possible, as it usually is possible, to use instead thereof something that will do a great deal more good and that can not possibly do the amount of harm. Lupulin is something in which he has been interested for a long time, and he is glad to have his ideas on the subject so ably supplemented and so far overreached by the studies of Dr. Reilly. Lupulin, he said, is certainly a good thing, and all coal-tar derivatives are bad things.

DR. JOHN W. FOSS, Phoenix, Ariz., said that he has used lupulin in a large number of cases with excellent results. He has found it a harmless yet effective drug in cases of insomnia and nervousness.

DR. W. F. WAUGH, Chicago, said that he has had a little experience with lupulin, having given about one-half ton of it as a medicine while resident physician of an insane hospital. Lupulin was the basis of the composing medicines at night, but the doses recommended by Dr. Reilly were not found sufficient. A little whisky glass was filled with lupulin, an ounce or two ounces, enough tincture of conium was poured in to wet it and then 60 grains of potassium bromid were added. That was the average dose. It is not an easy thing to find a hypnotic that the insane can take night after night, for weeks and months, and which will still produce comparative quiet; yet that combination answered every requirement. That occurred in 1871 and 1872. Dr. Waugh also mentioned the use of lupulin at that time in cases of delirium tremens—not as a hypnotic, because he does not believe in this method; but it quieted the patient's nerves, and at the same time produced added benefit by settling the stomach and restoring some amount of circulatory equilibrium. It was found to be safe and was made a standby in the treatment of that affection. While Dr. Waugh believes that there are better remedies now for delirium tremens yet, he says, there is no denying the value of this drug in these cases.

DR. H. STERN, New York, stated that he and Dr. Reilly have made these experiments together and that he has worked on the question for the last four years. Dr. Abbott, he said, is mistaken if he thinks lupulin grows in the fields of this country. Dr. Stern said that he had experimented with almost every variety of lupulin on the market, and he is sorry to say that no first-class hops or lupulin are produced in this country. He has a friend in New York who is a "beer doctor." Beer has its diseases, and this man is a scientific expert on these diseases. In his laboratory Dr. Stern made observations four years ago. The only lupulin of therapeutic usefulness comes from Bohemia. That lupulin comes from a little place called Saaz, which is the center of the hop industry in Bohemia This lupulin Dr. Stern has compared with that in the market, especially with Merck's, which he said is inert. It can not be kept longer than seven or eight months. One must have fresh lupulin; otherwise it is useless. Dr. Stern stated that he obtained lupulin directly from Bohemia. Nobody in this country imports it. Some brewers use this lupulin in addition to hops, to give the special flavor to their beer, but very few, because of its cost. Dr. Stern called attention to the antiseptic value of lupulin. Whether this is due to the lupulin alone, or in a measure to the yeast, is hard to say at present. If to beer which is full of bacteria some of this lupulin be added, the bacteria are killed off in less than five minutes. In 1893 or 1894, at one of the German congresses, Professor Quincke said that it was very remarkable that in the epidemic of cholera in Hamburg every man who was permitted to take beer survived. He thought it was the yeast; but beer does not contain yeast. So if it was not the yeast that did the work then it must have been the lupulin. For gastric and intestinal diseases Dr. Stern has used lupulin during the last year and a half with the utmost benefit. The lupulin which he has now is almost inert, although he kept it as cool and hermetically sealed as possible.

DR. C. S. N. HALLBERG, Chicago, called attention to the fact that lupulin is an official drug and has been for a long time. There is no use, he said, of talking about some one's preparation of lupulin. There may be a superior quality of lupulin from Saaz, because that is where the Anheuser-Busch or Budweiser company get their hops. The same principle is in the lupulin as in the hops. If the Germans had only isolated the principles and sent it to this country then everybody would probably be using it. As it is, they have overlooked it. Dr. Hallberg said that there is no intestinal antiseptic among the 500 phenol or benzene derivatives that approaches that derived from lupulin with about 5 per cent. alcohol in the form of an amber liquid. He believes that it is the best intestinal antiseptic there is, because it adds 5 per cent. natural alcohol to its antiseptic properties.

DR. T. F. REILLY said in concluding the discussion that according to the *Index Medicus* nothing has been added to the literature on this subject since 1853.

THE BLOOD PLATES.

THEIR NUMERATION IN PHYSIOLOGY AND PATHOLOGY.*

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INTRODUCTION.

The blood plates have always had a special interest for me, since they were the subject of my thesis for the doctorate in 1886. At that time I suggested a method for their enumeration which involved the use of osmic acid as a fixative. This worked very well for the blood plates, but tended to clump the red corpuscles so that in making comparative counts the results were so unsatisfactory that I did not publish them. About six years ago I took up the work again, using formaldehyd in physiologic salt solution as a fixative, and found this method to be a success. In consulting the literature, up to that time, so many new and interesting problems were suggested that I have given as much time as I could spare to their investigation, and have also assigned such research for thesis work to graduate students in my department at the University of Illinois. Our work culminated in an expedition of six of us to Cripple Creek and Pike's Peak to study the effect of altitude on the blood.

I find the literature of this subject very much scattered; it has not been brought together in any English paper for fifteen years. There are errors which have evidently been copied by one author from another, and often work by inaccurate methods has been quoted by the side of work which is good, without any sign of discrimination. I have, therefore, undertaken the task of consulting the original papers whenever possible and of giving references, by page, to statements quoted.

I. METHODS.

The blood plates are small round or oval bodies, varying considerably in size, but on an average about one-third the diameter of the red corpuscles. Unless special means are employed to preserve them, they become sticky and clump together or adhere to any foreign substance immediately after the blood is drawn. They then undergo a peculiar disintegration which is closely connected with the process of the clotting of the blood. The rapidity with which they break down is profoundly affected by the roughness of the surface with which they come in contact and by the temperature. A surface of neutral oil or clean paraffin will preserve them for some minutes. At zero, centigrade, they are preserved. It is necessary to bear these facts in mind in order to appreciate the discussion which is to follow.

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For convenience of description and criticism, the methods which have been employed for counting the blood plates may be enumerated as follows:

A. Direct examination: Blood in thin layers undiluted.
B. Direct examination: Blood mixed with a fixative diluent.
C. Direct examination: Blood mixed with a non-fixative diluent.
D. Direct examination: Blood in dry films.
E. Pipette method (simple).
F. Pipette method with refrigerated pipette.
G. The Ratio-method. (Laker's method).
H. The Thoma-Zeiss counting chamber in blood plate numerations.
J. Special forms of counting chambers.
K. Devices which obviate the use of counting chambers.

A. Direct Examination: Blood in Thin Layers Undiluted.—This method was employed before definite numeration methods were suggested, and it has also been used, to some extent, since. It is untrustworthy in the highest degree. The blood plates stick to the glass where they first touch, and one may find few or many of them, according to the part of the preparation examined. Moreover, the plates are found clumped in masses, and greatly altered in form, so that a genuine numeration of them would be impossible. This may easily be demonstrated by taking a drop of blood on a cover-glass and laying it on a slide in the usual way. As soon as the cover-glass is in place get the blood in focus (low power) as quickly as possible. Next place a drop of 0.75 per cent. sodium chlorid solution on the slide so that it just touches the edge of the cover-glass, and to the opposite edge of the cover-glass apply a small piece of filter paper and allow it to remain in this position. The filter paper will draw the blood from under the cover-glass and the salt solution will rush in to take its place.

On observing the red corpuscles in the swirling currents thus set up, it will be observed that they bump against stationary islands which adhere to the glass. These islands increase in size, and, as the red corpuscles are washed away so as to make a comparatively clear field, the islands will be seen to be made up of agglutinated blood plates. The islands are thickest where the blood first touched the cover-glass. This makes a good class demonstration and will convince any one that the red corpuscles move freely while the blood plates stick to the glass and to each other. Try to count them—it will be impossible. For purposes of demonstration, the drop of salt solution may be followed by a second drop of the same solution, colored with Lugol's solution. This makes the plates very prominent and will also bring out fibrin threads if the blood has stood long enough to clot.

B. Direct Examination: Blood Mixed with a Fixative Diluent.—The term fixative is here used in its strict histologic sense, viz., one which will kill a cell and preserve it in an approximately natural form. A rapid fixative for the blood plates removes at once their power to change their form or to develop the adhesive properties referred to above, and allows them to float freely side by side with the red corpuscles. Everything else being equal, such fluids are to be preferred. Unfortunately, of the many fixatives employed in histology few can be used with blood owing to secondary effects, such as causing precipitates, decolorizing or distorting the corpuscles, etc. The only fixative fluids which we have found to be free from all these objections are those containing formaldehyd (best about 2 to 3 per cent.) in the presence of certain neutral salts. The various fluids employed by different observers for the numeration of blood plates will be discussed under fluids. With an unobjectionable fluid of this class, the ratio of the plates to the red corpuscles can be determined directly, and, the number of reds being known, the number of plates can be calculated. A simple examination would enable an experienced observer to say whether the plates were greatly increased or decreased, in comparison with the reds, without making an actual count for the ratio.

In employing this method, even for simple examinations, never let the blood touch the cover-glass until after it has mixed well with the fixing fluid. The following experiment will demonstrate the importance of this: Place on the slide a pool of several drops of fluid containing 2.5 per cent. formic aldehyd and 1 per cent. sodium chlorid in water. From a puncture on the finger take on the center of a cover-glass a drop of blood the size of a small French pea. Place the cover-glass, blood side down, on the fluid on the slide and remove the excess of fluid with filter paper. Over the area where the drop first touched, the plates will be seen in large numbers adhering to the cover-glass; elsewhere they will float free, but sometimes in clumps. Now repeat the experiment by placing a large drop of the fluid over the puncture to receive the blood the instant it emerges. Take a small drop of blood and mix the blood with the fixative on the finger by a few gentle strokes with a clean needle. Place the mixed drop on a slide, lay on the cover-glass and examine. The plates will all float free and unclumped along with the red corpuscles.

These demonstrations may be made more striking by coloring the solution with methyl violet, which stains the plates. A convenient way to do this is to use an uncolored aldehyd mixture on the finger so as to judge the amount of blood taken, then blend the mixed blood and aldehyd salt solution with a drop of the colored solution placed on the slides. Cover and examine. The all-important point of the procedure is that no part of the blood drop shall touch the glass before it has mixed with the fixing fluid.

C. Direct Examination: Blood Mixed with a Non-fixative.—Non-fixative fluids are hard to discuss, as a whole. There is no general rule that will apply to them. The value of the results of observers who have used such fluids depends on the details of their method, as well as on the fluid used. One crucial point is: Does the fluid in question allow the plates to clump or to stick to the glass? If it does, it is untrustworthy to that extent. Another point is: How does it preserve the red corpuscles? Since the relative number of plates and red corpuscles is what we are after, it is obvious that each must be preserved—at least long enough to make a satisfactory examination. If the fluid or the method otherwise permits the red corpuscles to bud off small fragments, it introduces an additional source of error which is very serious, as these fragments of the red corpuscles may lose their hemoglobin and be mistaken for blood plates. We believe that the Arnold buds are artifacts which belong in this category.[1]

D. Direct Examination: Blood in Dry Films.—This method consists in attempting to judge whether the plates are increased or decreased by direct examination of dry preparations prepared in the ordinary way. As early as 1885 Schimmelbusch[2] tried to count the plates

1. Arnold: Virch. Arch., vol. cxlv, p. 1 et seq.; also vol. clv, pp. 171, 189 and 193.

2. Schimmelbusch: Virch. Arch. 1885, vol. ci, p. 229; also Eberth and Schimmelbusch; "Die Thrombose," etc., Stuttgart, 1888, pp. 33 and 34.

by this method and found it impracticable. Since then it has been unsparingly condemned by the majority[3] of those who have tried to use it. We are unhesitatingly with this majority.

E. Pipette Method (Simple).—This method consists in measuring the blood directly in some form of pipette, then mixing it with a known amount of diluting fluid, counting the number of blood plates in a given volume of the diluted blood and calculating their number per cubic millimeter just as is done when making similar counts of the red corpuscles. The Hayem-Malassez, Gowers, and Thoma-Zeiss instruments have all been used in such numerations. The chief objection to this method is the use of the measuring pipette for the blood. The adhesive properties which the blood plates develop when they touch foreign substances make them stick to the pipette. It is a significant fact that, as a rule, the counts made by this method are lower than when some method is employed which obviates this source of error. The objections to this method have been pointed out by nearly all the writers on the subject, and those who have used it have done so in default of something better, pointing out that, though the results are only approximately accurate, they are still of value. One variable factor in the error of this method is the temperature of the pipette. In a warm room the error would be greater than in a cold one. In spite of all this, we feel that there is a great deal of truth in the contention that comparative results obtained by the pipette method, while by no means accurate, need not be discarded altogether, though we would by no means advocate the method.

F. Pipette Method, with Refrigerated Pipette.—This method was devised by van Emden[4] to reduce to a minimum the adhesion of the blood plates to the pipette. The measuring pipette is placed in a dry short test-tube furnished with a perforated stopper, and the test-tube is placed in a cold bath.[5]. Further details are not given. He uses a diluting fluid, recommended by Prus, which decolorizes the red corpuscles so that they do not obstruct the view. This enables him to get a very large number of plates in the field for counting and consequently reduces the error. He has compared this method with the ratio method, which we recommend and describe below, and finds that each gives equally good results.

G. The Ratio Method (Laker's Method).—Recognizing the errors of the pipette method, mentioned above, Laker[6] and Kemp,[7] independently and simultaneously, proposed a new method for determining the number of blood plates by first getting their ratio to the red corpuscles. The number of the reds being obtained by one of the ordinary methods, the number of plates could be calculated by the simple rule of proportion. This is commonly referred to as Laker's method.

H. The Thoma-Zeiss Counting Chamber in Blood-Plate Numerations.—This is the method which has been chosen by the majority of late observers. The instrument is now in common use and is readily procurable almost anywhere. We have used it, for the most part, in our experiments. With a fluid which fixes the blood plates immediately, and has such a low specific gravity as to allow them to settle readily to the bottom of the chamber, we have found that it gives very satisfactory results; but other observers, working with different fluids, have found serious drawbacks which have led some of them to discard it.

The first objection to the Thoma-Zeiss counting chamber is that it is too deep, that often when it is desirable to employ an extra high power it can not be done. This is a valid objection, but it is not fatal to the method. In determining the ratio of the plates to the red corpuscles, the exact capacity of the space over the ruled field is of no consequence. Therefore, we have been in the habit of using, in such determinations, an ordinary cover-glass instead of the special one employed in counting the reds. By this simple substitution we can use a sufficiently high power to settle, in ninety-nine cases out of a hundred, whether or not a given body is a blood plate.

The second objection, that the plates do not settle to the bottom so as to be seen against the lines, deserves special consideration. Determann[8] cautions that the observer must not fail to focus up and down with the fine adjustment of the microscope, so as to search the fluid of the chamber from top to bottom. He says "the red corpuscles always sink very rapidly, while the plates may be seen in the upper layers of the liquid for some time later (*noch lange*)." This focusing up and down, away from the ruled bottom of the chamber, would be extremely inconvenient and, we fear, would introduce a serious error.

On examining the details of Determann's work we are convinced that the fluid he used and some of the details of the method he employed are together responsible for the difficulty. His directions are as follows: First stick the finger, then place over the puncture a drop of the diluting fluid. As soon as the first drop of blood appears and mixes with the diluting fluid, the mixed drop is taken quickly on the cover-glass and further mixed until the blood is evenly distributed through the diluting mixture. If too large a drop of blood is taken, it is further diluted on the cover-glass. He tried fourteen different diluting fluids and finally selected two, viz., 0.9 per cent. NaCl solution colored with a little methyl-violet (practically Bizzozero's fluid), which is his favorite, and one of Wlassow's fluids (an aqueous solution of 1 per cent. sodium chlorid and 5 per cent. potassium bichromate), which he says is very good (sehr geignet). Now it so happens that, of the fourteen fluids he mentions, none combines the advantages of fixing the plates and of having a low specific gravity like the fluid we shall recommend. If the fluid has a high specific gravity the plates will settle more slowly or they may even float at the surface and not settle at all. This was found to be the case by Pratt[9] and by Helber,[10] as well as by Determann, as above referred to.

Still more serious objections may be made to the modified Bizzozero fluid which Determann used. This has a low specific gravity, but it is a very imperfect fixative. The blood plates are not wholly prevented, by its action, from sticking to glass, and, moreover, they swell (probably by the imbibition of water). Determann himself

3. Among the latest of these, see Preisich and Heim: Virch. Arch., 1904, vol. clxxviii, p. 50, for a review of theoretical and practical reasons against it.

4. van Emden: Fortsch. d. Med., 1898, vol. xvi, p. 245.

5. Die Zählpipette wird, von einem kurzen, mit einem durchbohrten Stöpsel verschenen Reagenzröhrchen umgeben, in eine Kältemischung gesteckt. In dieser Weise bleibt sie trocken, bekommt aber bald eine niedere Temperatur.

6. Laker: Sitzungsberichte d. Kais. Akad., Vienna, Part III, May, 1886, p. 32.

7. Kemp: Studies from the Biological Laboratory, Johns Hopkins Univ., May, 1886, vol. iii, p. 308.

8. Determann: Deutsch. Archiv. f. klin. Med., 1898, vol. lxi, pp. 366-368.

9. Pratt: Archiv. f. exp. Path. u. Pharm., 1903, vol. xlix, p. 303; also Jour. of Med. Research, 1903, vol. x, p. 123.

10. Helbert: Deutsch. Arch. f. klin. Med., 1904, vol. lxxxi, p. 318.

has noticed this swelling;[11] and Bizzozero[12] calls especial attention to their sticking to the glass. We have had a large experience in examining blood plates in Bizzozero's fluid and can corroborate these observations. We see how the swelling of the blood plates might make them float, though we have not given special attention to this point; but we have no doubt about them sticking to the glass, and when we read that the fresh drop of blood, just blended with the Bizzozero fluid, is mixed more perfectly on the cover-glass, and if too much blood is taken more diluting fluid must be added, we see how this might introduce an error in the same line as the use of the pipette method, or it might group the plates just where they were to be counted and make the count too high. We are suspicious of this when we see Determann giving records in which the blood plates were four times as numerous as the red corpuscles.[13]

It is interesting to note in this connection that when Bizzozero counts the blood plates he discards his older fluid and substitutes one which contains osmic acid,[14] thus making his fluid a true fixative. Since the blood plates are lighter than the red corpuscles and settle to the bottom of the chamber more slowly, we can not determine the ratio of the plates to the reds before both have settled and can be seen lying in the squares. With the Kemp and Calhoun fluid this requires from two to three minutes, but it has been our custom to wait five minutes so as to be on the safe side.

The time required for the plates to settle was determined by the following simple method: After the drop of the diluted blood is placed in the counting chamber and the cover-glass is in position, focus on the bottom, using a 1/6-inch objective. Keep the same field under observation and note the position, with regard to the lines, of the blood plates which have settled immediately. Within the first minute it will not be unusual to see a new blood plate descend and rest on the bottom. By the end of the third minute they are all down, as may be determined by making successive counts of the ratio in the same field.

J. Special Forms of Counting Chambers.—For counting the plates Hayem[15] employs a counting chamber made especially shallow (0.1 mm.), with a thin flat cover-glass. This admits the use of a higher magnification than is customary in counting the red corpuscles (Nachet objective 6 instead of 5). The base of the chamber is ruled so that a cubic unit is a parallelopipedon having a base of one-fifth of a millimeter and a height of one-tenth of a millimeter. While this chamber was made especially shallow, it was so only in comparison with the older French form. It has the same depth as the Thoma-Zeiss counting-cell, and, therefore, may be considered as having been treated with that instrument in the discussion above. More recently Helber[16] has employed a counting chamber which he has had made specially for blood-plate work. It has a depth of 0.02 mm., otherwise it is exactly like the Thoma-Zeiss instrument. With a thin cover-glass this enables one to use a sufficiently high power to determine, beyond doubt, whether a given body under observation is a blood plate. Pratt had tried the same thing with a chamber intermediate in depth between the Thoma-Zeiss cell and the one later recommended by Helber. He was dissatisfied with the results, however, and discarded the counting chamber for a method which will be described later.

K. Devices which Obviate the Use of Counting Chambers.—The first observers to employ the ratio method for actual numeration without a counting chamber were Bizzozero[14] and Salvioli,[16] each of whom used an ocular with a scale ruled in squares, and determined the ratio of the plates to the red corpuscles, in the areas thus marked out, in ordinary preparations of blood diluted with a fixative.

Following Bizzozero and Salvioli, we made a number of experiments, using scales ruled on glass to fit in the ocular. These were prepared for us in the physical laboratory of the University of Illinois by Mr. E. F. Bracken, a graduate student in physics, through the courtesy of Professor F. A. Sager. Several scales were ruled to suit different magnifications, and the distance between the lines was calculated so that the squares represented known areas in the field of the microscope. We compared the results of this method with those obtained from the same blood, using the Thoma-Zeiss instrument, and they were found to be the same. We can, therefore, recommend this method for accuracy.

In the earlier experiments of Pratt[9] and in those of Helber, these observers tried to use the Thoma-Zeiss chamber with a 10 per cent. solution of sodium metaphosphate, and, as Pratt says, the experiments "were wrecked on technical difficulties." These, we infer from the context, were chiefly the fact that the plates floated at the top of the liquid and could not be brought in focus with the lines at the bottom of the chamber, nor could a very high power be employed. Helber got around these difficulties by using the shallow chamber described above; Pratt solved the problem by using an Ehrlich ocular. He has more recently replaced the Ehrlich ocular by a disk of cardboard, with a square hole cut in it, which is laid in the eyepiece.

We gather from a paper by Richardson[17] that this was also the arrangement used by him. This simple device does away with the necessity of any special apparatus for obtaining the ratio between the plates and the red corpuscles. The slide is moved about and the ratio is determined in a number of the places taken at random. A lens of any power can be used. We have tried the Ehrlich ocular and found that it worked, so that the same may be said for the cardboard substitute.

After our experience with the ruled squares in the eyepiece, the Ehrlich ocular, and the Thoma-Zeiss chamber, we must say we prefer the latter rather as a matter of convenience than because the others are not accurate. It was purely an accident that we began with a fixative fluid of low specific gravity, and thus avoided the rock on which the first experiments of Pratt and of Helber were wrecked. The method yielded strikingly constant results and we became used to it. We adopted the routine practice of taking a bird's-eye view of the field to see if the corpuscles were evenly distributed, just as we do before counting the red corpuscles. When the lines move with the field, it makes orientation easier, and one knows at a glance that he is not examining the same part of the specimen twice. Then, again, if swift currents are set up and continue in one direction, we can not escape the suspicion that the plates, being smaller, would be swept along more rapidly than the red cor-

11. Determann: "Die Plättchen quellen oder sich sonstig verändern."
12. Bizzozero: Virch. Arch., 1882, vol. xc, p. 278.
13. Determann: Deutsch. Arch. f. klin. Med., 1898, vol. lxi, p. 382, Case 45. Compare also pp. 367-368.
14. Bizzozero: Arch. ital. de Biol., 1891, vol. xvi, p. 388. Also Pizzini: Riforma medica, 1894, vol. ii, p. 376.
15. Hayem: Arch. de Physiol., 1878, vol. v, p. 721; also, "Du Sang," Paris, 1889, p. 38.
16. Salvioli: Virch. Arch., 1891, vol. cxxv, p. 378.
17. Richardson: Jour. of Med. Research, 1904, vol. xiii, p. 101.

puscles, and thus destroy the true ratio in any given part of the field. It was more difficult to avoid this with an ordinary slide than with the Thoma-Zeiss chamber, and it required more care to get the red corpuscles evenly distributed. For this reason we rejected preparations where the distribution was very unequal.

The Helber chamber posssesses all the advantages claimed here for the Thoma-Zeiss, and we are inclined to believe that it is the more satisfactory, though we have not tried it. Certainly instances have arisen where we have wished to swing on a higher power to examine a given blood plate and were unable to do so owing to the depth of the chamber. In counting the plates in pathologic blood, especially where the red corpuscles show signs of disintegration, or where precipitates exist in the plasma, we can easily conceive of instances in which the Thoma-Zeiss cell should not be used, and where the counting devices of Helber, of Pratt, or of Bizzozero and of Salvioli could be employed to advantage.[18]

II. FLUIDS.

The fluids used in numerating the blood plates have, in nearly every instance, become associated with the name of the observer who proposed them. So that they will be found below, for the most part, under the authors' names, in alphabetical order.

Acid, Osmic.—Osmic acid is an immediate fixative, and is recommended as an ingredient of a number of numeration fluids, especially by observers of the Italian school.[19] We have tried osmic acid in a large number of combinations, and none has been satisfactory. It preserves the blood plates, but it has a tendency to clump or to distort the red corpuscles, and in some combinations it decolorizes them. Several observers have tried osmic acid, but reject it for some more favored fluid without stating wherein the osmic acid was objectionable. Marchner[20] has been more specific, and we find that his objections are the same as ours. With fluids containing osmic acid, the results are better when neutral salts are present than when the acid is used in simple aqueous solution.

Afanassiew[21] took the suggestion, for a preservative fluid for the blood plates, from the classical researches of Schmidt-Mühlheim, Fano, and Bizzozero on the action of peptone in preventing clotting. His directions for preparing the fluid he used are as follows: In a 0.6 per cent. sodium chlorid solution, dissolve 0.6 per cent. of dry peptone, and add methyl violet about 1 part to 10,000 or even 1 part to 20,000. Boil, filter and preserve in sterilized flasks plugged with cotton. Fermentation may also be prevented by adding small amounts of methyl alcohol[22] or phenyl alcohol, or corrosive sublimate, or carbolic acid. He prefers this solution to others which he tried, because it preserves the red corpuscles and the plates and mixes well with anilin stains for coloring the latter and the leucocytes. We have not tried this fluid, but Fusari[23] finds that while it preserves the plates it decolorizes a large number of the red corpuscles, and Brodie and Russell object to it on the ground that it does not entirely prevent the plates from adhering to the glass. It can not be classed among the fixative fluids.

Aldehyd Formic.—Formic aldehyd, as a fixative in diluting solutions for numerating the blood plates, was first used by Kemp and Calhoun.[24] We have extended these earlier observations of two of our number, and are convinced that formic aldehyd, combined with neutral salts, is a thoroughly efficient reagent for the purposes for which we employ it. Our fluid is conveniently made by the following formula:

Formalin, 40 per cent. aqueous solution of H.COH.	10 c.c.
Sodium chlorid, 1 per cent. aqueous solution.....	150 c.c.

(Color with methyl green or methyl violet if desired.)

This gives a 2.5 per cent. solution of formaldehyd. When the aldehyd solution was used without the addition of salt, we found that the red corpuscles were decolorized in a short time. The use of salt prevents this decolorizing effect.

About equally good results are obtained when the sodium chlorid is present in anywhere from 0.75 per cent. to 3 per cent. Above 3 per cent. the reds become crenated, and below 0.75 per cent. they may lose their hemoglobin. The percentage of formaldehyd may also be varied within wide limits, but strong solutions are undesirable as they clump the red corpuscles and form precipitates.

In the course of our work we found one specimen of our solution which decolorized the red corpuscles. We suspected this decolorization to be due to acid formed by the oxidation of the aldehyd. On testing the fluid with litmus it was found to be slightly acid. This led us to make some experiments on solutions containing varying amounts of formic acid. If to the 2.5 per cent. formaldehyd containing salt, we add enough formic acid to make a 1 per cent. solution, the red corpuscles are clumped and decolorized. The action on the leucocytes and plates was similar to that of 1 per cent. acetic acid. The formaldehyd mixture with enough acid to make a 0.1 per cent. solution decolorized the red corpuscles almost immediately. With a 0.01 per cent. solution the reds were not clumped, although they were slightly swollen and no longer bi-concave. They retained their color six hours. We found that salt was always necessary to preserve the hemoglobin in the red corpuscles. The results of a more extended series of observations are given in the following table:

Per cent. of formaldehyd.	Per cent. of formic acid.	Per cent of salt.	Time of decolorization.
2.5	0.1	None.	Immediately
2.5	0.075	None.	Immediately.
2.5	0.05	None.	Immediately.
2.5	0.025	None.	Immediately
2.5	0.001	None.	Immediately.
2.5	0.1	0.75	Immediately.
2.5	0.075	0.75	Immediately.
2.5	0.075	1.50	15 minutes.
2.5	0.05	0.75	2 minutes.
2.5	0.025	0.75	No change in 1 hour.
2.5	0.001	0.75	Not decolorized.

The proportion of blood to the fluid does not have any effect within wide limits; if the amount of blood be large and the amount of aldehyd small, precipitates, probably of albumin, are formed. The dilution should be so regulated that the field is not so crowded with red corpuscles as to mask any of the plates. The aldehyd solution will preserve the blood plates indefinitely. The figures given for our solutions refer to absolute percentages of formic aldehyd and of formic acid. These experiments show conclusively that small amounts of formic acid (0.025 per cent.) do not decolorize the red cor-

18. Additional literature on this section by Rabl will be found in Wien Klin. Wochft., 1896, vol. ix, pp. 1060-1062.

19. Bizzozero, Fusari, Petrone, Pizzini and Salvioli. The fluid of Prus also contains osmic acid and deserves special consideration.

20. Marchner: Prag. med. Wochft., 1895, p. 353.

21. Afanassiew, Deutsch. Arch. f. k. Med., 1884, vol. xxxv, p. 226. The English equivalent for this Russian observer's name is given as "Afanasev" in the Index Medicus, and as "Afanasjev" in Minerva. As his work is almost universally referred to under the German spelling "Afanassiew" we retain that spelling here.

22. In the original this word is "methylen alcohol."

23. Fusari: Arch. per le scienze mediche, 1886, vol. x, p. 242.

24. Kemp and Calhoun: Proceedings of the Amer. Physiol. Soc., Am. Jour. of Physiol., 1901, vol. v, p. lv.

puscles, while higher percentages would introduce an error. They also show that higher percentages of salt retard the decolorization. In five years' experience we have used formalin from a number of different firms and have found only one specimen which contained enough acid to compromise the efficiency of the counting fluid when diluted with fifteen times its volume of water, as called for by the formula. We shook up this specimen of formalin with lead carbonate and allowed it to settle. The bottle stood for a year in the laboratory, and during this time we decanted several lots of formalin for making specimens of counting fluid, and compared these with a similar fluid made from other formalin. We found that the acidity was neutralized and that the small amount of lead salts which went into solution had no appreciable effect. We feel, therefore, that we can recommend this method for treating suspicious specimens of formalin and for keeping a stock of neutral formalin on hand.

Sodium chlorid is not the only salt which may be used in connection with formaldehyd to preserve both the red corpuscles and the blood plates. Marcano's[25] fluid for counting the red corpuscles is Malassez's classic solution of sodium sulphate (specific gravity 1020), combined with formaldehyd in the proportion:

Na_2SO_4 solution : Formol :: 90 : 10.

Marcano recommends this solution for the red corpuscles without mentioning the blood plates. We have tried it, and find that it is an excellent fixative for both of these elements. Marcano has also called attention to the fact that formaldehyd without salt will not do; Brodie and Russell[26] condemn aldehyd fluids in general, but they make no mention of having used salts with the aldehyd, so we suppose they were omitted.

After searching all the literature at our command and trying nearly all the fluids which have been recommended, we have found none which combines all the desirable points possessed by the solution which we use. We may enumerate these points as follows:

a. Rapid fixation of both blood plates and red corpuscles. The plates do not clump or stick. The reds do not become decolorized or give off buds.

b. The red corpuscles are not clumped, but are distributed perfectly freely through the liquid.

c. There is no precipitate formed to obscure the field or to be confused with the plates.

d. The fluid mixes readily with a large number of anilin dyes. Kemp and Calhoun combined methyl green with the fluid in the routine work. By using the dyes the plates may be stained and rendered more prominent. Certain histologic points may also be studied at the same time that the plates are counted.[27]

e. The fluid has a low specific gravity; hence the plates will settle more readily than in a more concentrated solution. It can be used with any counting device mentioned in Section 1, including the Thoma-Zeiss hemocytometer.

f. Neither bacteria nor molds will grow in the fluid. To all intents and purposes it will keep indefinitely. We have never had any of the fluid go bad, and we have tested specimens which have stood for several months. In making this statement we are not unmindful of the chemical properties of aldehyds: the possibility that they may polymerize or be oxidized to acid. If a specimen becomes sufficiently acid to decolorize the red corpuscles, it should be thrown out and a new solution made.

g. It is cheap and easily prepared. The ingredients are to be found in every drug store.

(To be continued.)

25. Marcano: Arch. de méd. exp. 1889, vol. xi, pp. 436-438.

26. Brodie and Russell: Jour of Physiol., 1897, vol. xxi, pp. 391 to 395.

27. The use of the methyl green was discontinued because with increased experience we felt we could see the plates well enough without it, and the clear fluid enables one to observe better the mixing of the blood with the fixative which is placed over the puncture. For beginners with the method, we might still recommend the use of a stain; and would suggest methyl violet for the purpose, as a weaker solution of this dye will stain the plates effectively.

Special Article

THE PHARMACOPEIA AND THE PHYSICIAN.

CHAPTER XV.

CIRCULATORY STIMULANTS.

The subject of circulatory changes is entirely too extensive for anything like a comprehensive treatment in the limited space that has been allotted to this series of articles. We shall endeavor, however, to discuss some of the indications for influencing these changes and try to indicate how they may be brought about.

The term "heart-tonic" has been so loosely employed that it is better to avoid it altogether, or, to use it only with reference to those drugs which, acting directly on the heart, improve the muscular tone.

The heart is but one and, in some respects, even a minor factor in the question of blood pressure, on which the state of the circulation largely depends. Hence, while a "heart tonic" implies an agent which improves the action of the myocardium, the actual changes in the circulation depend not alone on the amount of work done by the central organ, but on the combination of that and the constriction or dilatation of the blood vessels.

Since the relative amounts of blood existing in the veins and arteries, and the amount which passes through a given area or organ in a given time are dependent on several more or less closely related factors, we may direct our efforts toward influencing one or more of these factors when we wish to increase or to diminish the blood supply of an organ, or when we wish to hasten the transfer of blood from veins to arteries.

An increase in the rate of the heart or strength of the beat, without a compensating change, either in the heart itself or in the blood vessels, will, of course, increase the general circulation, and conversely, a diminished action would lessen the circulation, but so delicately is the complex circulatory mechanism adjusted that such a simple change probably never occurs alone in the intact body, though it may at times predominate over other accompanying changes.

The simplest means of increasing the blood pressure consists in increasing the strength of the individual beats, whereby the heart is more completely and more forcibly emptied, and securing just enough slowing to enable the heart to dilate more fully and to become filled with a larger volume of blood. These two actions insure a larger volume of blood being thrown into the aorta in a given length of time than occurred under previous conditions. An increased volume of blood with increased force, must, of course, insure an increased circulation in those areas in which there is no great change in the caliber of the smaller vessels.

A high blood pressure on the other hand may be most simply reduced by slowing the heart without increasing its strength, or by acting on the vessels peripherally or through the vasomotor centers, causing dilation.

The accumulation of an undue amount of blood in the veins is relieved by increasing the efficiency of the heart as mentioned for raising the blood pressure—by slowing and strengthening its beat—for, as we have seen, this improves the drainage from the veins by lengthening the diastole, while the strengthening throws a larger volume of blood into the arteries.

We may arrange the agents affecting circulation into two groups as follows: Those mainly affecting the heart, directly or indirectly; those mainly affecting the vessels, directly or indirectly.

The most important group of circulatory stimulants consists of digitalis and a number of similarly acting substances. While, as is well known, barium chlorid has to some extent a similar action to digitalis, nearly all the other members of this group that are of therapeutic importance are somewhat allied chemically; for the most part the active principles of these drugs are glucosids or resins. The exact chemistry of the drugs of this class is still obscure, despite numerous investigations, and it demands but little consideration here; their pharmacologic action, however, serves to explain their therapeutic indications, and may aid in choosing the one best suited to a given condition.

The circulatory conditions demanding stimulation are mainly those in which undue relaxation occurs, and in which an imperfectly acting heart, including such conditions as valvular insufficiency and stenosis, permits the blood to accumulate in the veins. Any increase in the work of the heart must tend to relieve these conditions, particularly if there is at the same time just sufficient slowing to secure complete distention of the heart with blood during diastole.

An increase in the strength of the contraction more completely squeezes the venous blood out of the heart muscle, which is then supplied with a larger proportion of arterial blood. The increased force of the pulse wave must first be felt more strongly in the coronary artery than elsewhere, since there is less inertia to be overcome in the much shorter column of blood between the aortic valve and the opening into the coronary artery. The longer diastole then permits a more perfect supply to the capillaries in the heart, thus improving the nutrition of the heart to an even greater degree than would correspond to the extra work thrown on the ventricles by their being compelled to contract against an increased arterial pressure.

As we have just said, the slowing of the heart should be just sufficient to enable the heart to become fully distended, for a greatly slowed heart would suffer in lessened nutrition, because, other things being equal, the rate of flow through the coronary circulation varies with the number of the pulsations in a given space of time.

This improved nutrition of the myocardium is the first essential for a sustained increase in the force of the beats, either from a more energetic action of the unaltered heart or after hypertrophy; because however much a muscle might be stimulated to unusual activity, exhaustion and paralysis must follow unless nutrition keeps pace with the work performed. Langendorff has shown experimentally that the energy of the heart is enormously influenced by the available blood supply. A drug might affect one or more phases of the heart beat, or the local and central action may be in part antagonistic and the effect on the blood pressure in the general circulation will in the latter case be dependent on the kinds of influence and the degree to which each is excited.

Slight slowing with increased strength of contraction may improve the nutrition, and it will be readily understood why it is difficult to secure equally perfect nutrition of the heart when it is made to beat more rapidly, since the only factor here which makes for an improved coronary circulation is the more frequent squeezing out of venous blood by the contractions while all other conditions are unfavorable, a greater number of contractions, each throwing out less blood and meaning more energy expended for a given amount of work performed —a more frequent overcoming of the inertia of the blood in the arteries—so that a very rapid heart soon exhausts itself. For these reasons we do not often seek to raise blood pressure or to improve the general circulation by increasing the rate of the heart unless it is extremely slow.

Shock and collapse are conditions that are due to depression of the respiratory, cardiac and vasomotor centers. The depression of the vasomotor center permits the vessels to dilate and the blood gravitates to the vessels of the splanchnic area, which are capable of holding a very large amount. This dilatation is accompanied by a fall of pressure in the general circulation, less blood goes to the centers and to the coronary circulation, the heart beats more feebly and the respiration becomes weaker. This condition obviously calls for prompt stimulation of the circulation. It is apparent, however, that a stimulation of the heart alone would only result in increased work while its own nutrition would not be correspondingly improved because the pressure in the coronary circulation can not be greatly increased while the voluminous vessels of the splanchnic area offer cavernous spaces for the blood which is pumped from the heart.

Stimulation of the constrictor mechanism of the vessels is urgently demanded in collapse, and this is secured in the mildest cases by gravity determining the blood to the head when the head is placed lower than the body. The centers are toned up by the better blood supply, and this increased tone of the vasomotor center causes constriction of the splanchnic vessels, raises the blood pressure and improves the general circulation, which in turn further tones up the centers and the heart, which is also stimulated by the improved tone of the cardiac center. The respiration is improved at the same time owing to the improved tone of the respiratory center.

Dr. George Crile has devised a pneumatic suit whereby pressure may be applied to the surface of the limbs, thus forcing a large amount of blood into the body and head, and gravity (lowering the head) may be made to assist in driving it to the head—the essential fact being to supply the medulla oblongata with blood.

Physiologic Salt Solution.

Heat, mainly supplied by hot water bottles, should be used with any other measure in shock. The amount of fluid in the vessels may be considerably increased by injecting, under aseptic precautions, into a vein, or even under the skin, normal saline solution, or as it is better to term it, physiologic salt solution, made by dissolving 9 grams of sodium chlorid in enough water to make one liter (approximately 132 grains of sodium chlorid to 1 quart of water.). The solution should be boiled (to render it sterile) and then cooled to about 40° C. (104° F.). As noted above this solution may be used hypodermically or it may be injected directly into a vein. Another, and at times a very satisfactory, method of attaining the same result is to inject slowly one or two liters of this solution into the rectum, whence it is readily absorbed into the circulation.

Drugs which act on the vasomotor centers are indicated in collapse but the simple means just enumerated serve, as explained, to tone up the centers in mild cases by an improved blood supply, and they are of course preferable to mere stimulation by drugs. Then, too, in proportion to the emergency of the case is the difficulty of securing stimulation of the centers. In profound shock the stimulants of the vasomotor centers appear to have no lasting effect or to increase the trouble. In collapse of a mild character, however, a vasoconstrictor acting more powerfully on the vessels of the splanchnic area causes the general blood pressure to rise, more blood goes to the centers, and they are placed in better tone, exactly as is the case when gravity sends the blood to the head.

Hot alcoholic drinks are very commonly employed in collapse and shock; they probably act reflexly from the stomach.

Some clinicians maintain that morphin improves a weakened heart. As a depressed center is less susceptible to shock from reflex influences, morphin may lessen shock or depression due to pain and the center will then be able to exert a better influence on the heart. It has often been claimed that opium or morphin causes an increased supply of blood to the brain by dilating the vessels of that organ, and this may account for an increased circulation to the cardiac center and hence an improvement in the heart. The depression of the respiratory center by morphin is rather strong evidence against any stimulation of the cardiac center however. Morphin has no direct effect on the heart and its vasomotor effects are variable.

The pharmacologic action of digitalis and that of its available active principles have been more extensively studied than has been done in the case of any other member of the group. The isolated frog's heart, and later the mammalian, has been used to determine the action on that organ apart from the influence through the centers. The rate of the isolated mammalian heart is either increased or little affected by

digitalis or its principles, but Gottlieb and Magnus found that the strength of the individual contractions is increased by it and that more actual work is done by the isolated heart. In the intact mammal digitalis slows the heart by stimulation of the vagus center, and the strength of the beat is increased by the action on the myocardium. The vasomotor centers are stimulated at the same time. The direct results of these several actions have been detailed in the introductory paragraphs.

Digitoxin, the most active of the principles that have been isolated from digitalis, has essentially the same action on the circulatory system as the drug itself, but being insoluble in water it is slow in producing its effects. Albert Fraenkel has found that about sixty hours elapsed after a single effective dose was injected, hypodermically, into a cat before the typical action was induced.

Digitalin, or "Digitalinum verum," is somewhat more soluble in water and its action was elicited in twenty-four hours after a dose, corresponding in activity to that of digitoxin just mentioned, was injected into a cat, while strophanthin (obtained from strophanthus seeds), which is very soluble in water, produced its effects much more rapidly. The therapeutic action of these three substances is very similar, but Gottlieb and Magnus found that digitoxin is capable of restoring an irregularly beating heart to rhythmic pulsations to an astonishing degree; indeed, they were able to restore isolated and perfused hearts to strong regular beats after they had gone into delirium cordis.

Digitalis and the other members of this group have the great disadvantage of causing cumulative effects when used continuously for some time. Digitoxin produces these effects more readily than strophanthin and digitalin. Fraenkel was able to continue the administration of digitalin daily for ninety-two days at near the toxic dose without cumulative action. No habituation occurred in this period, however, thus disproving the claims of Heide, based on a much shorter period of experimentation, that such takes place.

Gastric irritation is the first evidence of a toxic action from a single toxic dose or from cumulative action, and the drug digitalis, or any of its congeners without exception, must be stopped for a time when cumulative effects are seen. When the heart is slowed by any member of the digitalis group the action is very persistent.

Fraenkel concludes that the duration of the action on the heart is proportioned to the stability of the union which takes place between the drug and the mechanism affected, but that the interval elapsing between the time of administration and the beginning of the action is proportional to the insolubility of the principle. Gottlieb and Magnus in experimenting on the isolated heart found that digitoxin caused a constriction of the coronary arteries, but that this did not occur after strophanthin.

The following official drugs belong to the digitalis group. As noted before, there are other drugs and chemicals that possess a somewhat similar action, but it must be evident to all that nothing is to be gained, and that much harm may result from giving heed to unwarranted and exaggerated claims of the nostrum maker who lauds a preparation which ostensibly depends on some little known drug, such, for instance, as the several species of cactus.

By far the most interesting as well as the most important of the official drugs of the group now under consideration is:

DIGITALIS.—U. S.—This consists of the dried leaves of *Digitalis purpurea*, collected from the second year's growth at the commencement of flowering. This drug is official in all pharmacopeias and is generally accepted as being particularly susceptible to chemical change. It should be carefully preserved and should not be kept for more than one year.

Average dose: 0.05 gm. (1 grain).

While the chemistry of digitalis is far from being thoroughly understood, there are a number of proximate principles derived from digitalis that are now being marketed in a commercial way and have well-defined chemical as well as physiologic properties; several of them at least are being extensively used in this country as well as abroad. The most potent of these unofficial articles is:

Digitoxin: This, as has been noted before, is soluble in alcohol but is nearly insoluble in water. The older and in some respects better known French preparations, variously called digitalin, crystallisée, or French digitalin, closely resemble digitoxin in physical properties and also in physiologic activity.

Digitalin (Digitalinum verum, Kiliani): This is a white amorphous glucosid that is readily soluble in alcohol but only slightly soluble in water. While it is less toxic than digitoxin and may be given in much larger doses, it closely resembles that principle in its therapeutic action and uses.

Digitin (Merck): This is also readily soluble in alcohol and only slightly soluble in water. While still available it is now generally thought to be physiologically inactive as a circulatory stimulant.

Digitalein (Schmiedeberg): This is readily soluble in water and is probably a mixture of several proximate principles.

Digitalin "German": This occurs as a yellowish white, amorphous powder that is soluble in both water and alcohol. It is said to consist of a variable mixture of Digitalinum verum (Kiliani), digitalein and digitonin.

The official preparations of digitalis[1] are:

EXTRACTUM DIGITALIS.—U. S.—This is made from the fluidextract by evaporation.

Average dose: 0.01 gm. (10 mg. 1/5 grain).

FLUIDEXTRACTUM DIGITALIS.—U. S.—Fluidextract of digitalis is made with diluted alcohol.

Average dose: 0.05 c.c. (1 minim).

INFUSUM DIGITALIS.—U. S.—Infusion of digitalis contains 1.5 per cent. of digitalis, 10 per cent. of alcohol and 15 per cent. of cinnamon water.

Average dose: 8 c.c. (2 fluidrams).

TINCTURA DIGITALIS.—U. S.—This now represents 10 per cent. of the crude drug in diluted alcohol in place of 15 per cent. as formerly official.

Average dose: 1 c.c. (15 minims).

STROPHANTHINUM.—U. S.—This is a glucosid, or mixture of glucosids, obtained from strophanthus.

Average dose: 0.0003 gm. (0.3 mg. 1/200 grain).

STROPHANTHUS.—U. S.—This consists of the ripe seeds of *Strophanthus Kombé*. It is preferably administered in the form of the official tincture.

TINCTURA STROPHANTHI.—U. S.—This preparation now represents 10 per cent. of the drug in 65 per cent. alcohol, and is double the strength of the tincture official in the U. S. Pharmacopeia, 1890.

Average dose 0.5 c.c. (8 minims).

APOCYNUM.—U. S.—This is the dried rhizome of *Apocynum cannabinum*, or of other closely allied species of apocynum. This drug is said to have been used by the American Indians in various ailments, and has long been in use as a household remedy. More recently it has again attracted attention by its possible uses as a circulatory stimulant, though the practical results that so far have been attained do not appear to warrant its use in all cases. The only official preparation is:

FLUIDEXTRACTUM APOCYNI.—U. S.—The fluidextract of apocynum is directed to be made with a mixture of 10 per cent. of glycerin, 60 per cent. of alcohol and 30 per cent. of water.

Average dose: 1 c.c. (15 minims).

CONVALLARIA.—U. S.—This consists of the dried rhizome and roots of *Convallaria majalis*.

Average dose: 0.5 gm. (7½ grains).

FLUIDEXTRACTUM CONVALLARIÆ.—U. S.—This is made with a mixture of 65 parts of alcohol and 35 parts of water.

Average dose: 0.5 c.c. (8 minims).

1. From what we know of the chemistry of this particular drug, and from the action of the known isolated proximate principles, it would appear that in this connection it was particularly unfortunate that the committee on revision did not see their way clear to adhere more strictly to the proposed international standards for the formula of potent medicaments and direct, for the extraction of digitalis, the proposed 70 per cent. alcohol in place of the diluted alcohol of the U. S. Pharmacopeia. The stronger alcohol would have had the advantage of insuring a more ready and more complete solution of the active principles, of answering better as a preservative and of materially reducing the amount of inert, and, therefore, unnecessary, extractive now contained in the official tincture.

Therapeutic Actions of the Digitalis Group.

Digitalis has been referred to under the heading of diuretics (Chapter V), and for this purpose the infusion is usually to be preferred.

As a circulatory stimulant one of the drugs of the digitalis group is indicated when the heart is weak and rapid and the blood pressure low, conditions which arise under a variety of circumstances.

In cardiac dilatation with weak systole digitalis affords an ideal remedy as may be readily understood from its pharmacologic action. In pneumonia the right ventricle suffers primarily and digitalis is indicated, for while it affects the right ventricle less than the left, and the auricle least, this does not affect its usefulness in this condition, because the nutrition of the heart—both left and right—is supported by the improved coronary circulation, a most important factor, as we have seen, when extra work is thrown on the heart and the pulmonary circulation is not affected by the general vasoconstrictor action of the digitalis. In this connection the lengthened diastole, while it undoubtedly affords a better chance for the emptying of the pulmonary veins, is a factor of but minor importance. The use of digitalis in mitral insufficiency is familiar to all and the pharmacologic action readily explains its usefulness in this connection.

Digitalis and its congeners are said to be harmful in some cases of mitral stenosis, and they may fail to prove beneficial in insufficiency of the aortic valves. It is suggested that in this condition the blood may gravitate from the brain through the aortic valve during the lengthened diastole. The action of the drugs must be carefully observed in these conditions and they must be withdrawn if they appear to be doing harm.

Drugs of the digitalis series are contraindicated in cases of fatty degeneration of the heart, since a heart so weakened could scarcely support the additional burden imposed by the increased arterial tension, nor can hypertrophy be expected to occur in such a heart. They are also contraindicated in all conditions in which an increasing blood pressure would be dangerous, for instance, in aneurism.

With digitalis particularly, one must constantly watch for the first symptoms of cumulative action, usually gastric disturbance, and it, or other members of the same group, should be temporarily withdrawn when suggestive symptoms occur.

The tincture of digitalis contains a larger proportion of the alcohol-soluble digitoxin than does the infusion, in which the digitoxin present is held in solution by means of digitonin. Digitoxin being the most irritant of the known principles of digitalis, the infusion, containing digitalin principally, will often be preferred.

When the heart is weak and irregular digitoxin is probably the most efficient remedy we possess for restoring it to normal contraction. An alcoholic solution of digitoxin may be used to advantage, provided it be well diluted with water when administered or taken. It is altogether too irritant for hypodermic injection, but if the claim made by Cloetta to the effect that he has succeeded in preparing a stable, water-soluble form of digitoxin, which is not very irritant, is substantiated, a distinct advance will have been made in digitalis therapy.

The dose of digitoxin as given by the different authors is somewhat variable. Cushny states that 1/12 mg. (1/750 grain) of crystalline digitoxin may be given three times daily. Schmiedeberg recommends 1/5 mg. (1/330 grain) of the crystalline digitoxin three times daily. This is the dose used by Marx with good results in Naunyn's clinic. The physician will do well not to exceed this latter dose too greatly, bearing in mind that cumulative effects may, and sometimes do, develop quite suddenly, even with a dose which has been apparently harmless.

Digitoxin and digitalin, pure or in the leaf, are changed into substances with a convulsive action in the presence of moisture, by bacteriologic action, hence old infusions should not be used nor should such leaves be employed which bear evidences of not having been properly dried or carefully preserved.

Digitoxin and digitalin may be kept dissolved in alcohol and diluted as required. The dose of digitalin, or digitalinum verum, is from 2 to 6 mg. (1/30 to 1/10 grain) three times daily.

Digitoxin may be prescribed as follows:

Digitoxini (cryst.)	gr. 1/12	.005
Alcoholis q. s. ad	ʒiii	100

M. Ft. solutio. Sig.: One teaspoonful in a little water three times a day.

Digitalin can be prescribed in the same way but 0.05 is used in place of 0.005 gm. thus:

Digitalini veri	gr. i	.05
Alcoholis q. s. ad	ʒiii	100

M. Ft. solutio. Sig.: One teaspoonful in water three times daily.

The tincture of digitalis, diluted with water, is given alone three times a day. Owing to the slow excretion it is not necessary to repeat the dose more frequently, and the drug should be stopped for two days about once a week to avoid cumulative effects, whether one of the active principles or a Galenic preparation of digitalis is being used.

Sollmann has suggested that strophanthin may deserve an even greater popularity than digitalis, and this suggestion has found support in more recent investigations. Strophanthin is now official, whereas the active principles of digitalis have not as yet been included in our Pharmacopeia.

Strophanthin does not cause vasoconstriction and it therefore deserves the preference over digitalis and its principles when increased blood pressure is to be avoided. Thus, when dilatation of the heart is due to high blood pressure from increased arterial tension, strophanthin may be used, or if digitalis is employed, a vasodilator such as nitroglycerin or one of the nitrites should be given at the same time.

Because of its more prompt effect on the heart, strophanthin may be employed to usher in the action when digitalis is to be employed. This promptness of action would also render it preferable to digitalis in shock or collapse were it not that the vasoconstrictor action is wanting.

Digitalis, or one of its principles, may be given several hours before an operation when there is reason to apprehend shock, so that its action may coincide with the time that shock occurs instead of waiting till that condition has actually developed before giving the slowly acting remedy.

Owing to the variable quality of the strophanthus seed and the tinctures that are now obtainable, it may be well for the physician to use the pure principle, strophanthin. This is easily obtainable and is readily soluble in water so that it may be prescribed in simple solution.

Strophanthin, it should be added, is also somewhat variable in quality and composition, but since it acts much more quickly than digitalis the dose may be cautiously increased if necessary. It undergoes decomposition, and it is therefore better to prescribe it in diluted alcohol: 0.01 gm. (1/5 grain) may be directed to be dissolved in 150 c.c. (5 fluidounces) of diluted alcohol and one teaspoonful of this solution, diluted with water, given three times a day.

Dr. H. C. Wood, Jr., recommends Canadian hemp as a satisfactory and reliable circulatory stimulant, but as his published work appears to have been done with a fluidextract of *Apocynum cannabinum* and as the Pharmacopeia itself recognizes closely allied species of apocynum, that may or may not have similar physiologic properties and therapeutic uses, it may be well to await the results of further investigations before trusting too implicitly in the possible results to be obtained from this drug.

Other official members of this group have little to recommend them in preference to the more prominent ones just described.

It might be added that the alkaloid of the suparenal gland is not suited for long continued administration. It does not influence blood pressure when given by the stomach, and but slightly or not at all when injected just beneath the skin. When injected into the muscle there is a transient rise of blood pressure. Its local use has been discussed at greater length in connection with astringents (Chapter XIII).

Autosuggestion and the Mentally Defective.—Gordon of Philadelphia, in *American Medicine*, states that mentally defective children are particularly inclined to autosuggestion, and that the same symptom is observed in adults similarly affected.

Clinical Notes

BILHARZIA DISEASE.

REPORT OF TWO CASES OBSERVED AMONG PORTO RICANS IN SAN FRANCISCO.*

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Bilharzia disease, called also endemic hematuria and bilharziosis, is caused by a trematode worm or fluke inhabiting principally the portal venous system, where it deposits its eggs, the escape of which into certain organs produces the various symptoms of the disease.

Bilharz discovered the parasite in 1851, and later the disease was named after him.

The disease is quite prevalent in some parts of the world, but until recently few cases had been observed outside of endemic areas. In many parts of Africa it is quite common.

In Egypt over 50 per cent. of the population harbors the parasite. Cases have been observed in Cyprus, Sicily and Mauritius.

British soldiers returning from South Africa have probably disseminated the disease to a considerable extent, as recently shown by Douglass[1] and Hardy.

In the United States, so far as I am able to find, only six cases have been reported.

The descriptions given of the findings in two of these cases are so at variance with the teachings of authorities on the subject that one is doubtful as to the correctness of the diagnoses.

The first case was reported by Booth of Sparta in 1882 and was supposed to have originated in Illinois, but the description given of it does not warrant its acceptance as one of bilharziosis. The second case, reported in 1895 by B. F. Curtis[2] of New York, occurred in an English soldier who had contracted the disease in Egypt. The third, reported in 1897 by Brooks[3] of New York, was an imported case. The fourth was reported by Walker[4] of Indiana in 1900. This patient was supposed to have contracted the disease in the same neighborhood in Illinois as the first patient reported by Booth. What was said of Case 1 undoubtedly holds true in this case and it is impossible to consider it as one of bilharziosis. The fifth case was reported by Pool,[5] New York, in 1903 and was an imported case. The sixth was reported in 1904 by O'Neil,[6] Boston, and was also an imported case. A seventh case, not as yet reported recently came under the care of Dr. M. E. Lando, U. S. Navy, at the Mare Island Navy Yard Hospital. The patient, I understand, had been in Africa. Thus, there have occurred in the United States, so far as we know, only five cases of this disease, in all of which the urinary tract was the seat of the lesions.

The two cases I here report represent, I believe, the first appearance in this country of the intestinal form of bilharzia disease.

Manson[7] reported a case of the intestinal variety of bilharziosis occurring in an Englishman who had resided for many years in the West Indies and who must have contracted the disease there. Porto Rico was apparently not among the islands visited by this patient. Manson concluded that at least one island of the West Indies group was infected with this disease. Recent observations have proved that Manson's conclusion is correct, as the disease has been observed in Porto Rico by Ashford and others. Both of my patients resided for a time in Hawaii, and, as they had passed through the United States on their way from Porto Rico there, the source of their infection must have been one of the three places. The United States can practically be eliminated as a possible source.

The disease has never been observed in the Hawaiian Islands and is not found in China or Japan, from which countries Hawaii draws largely for her coolie laborers.

Catto[8] described a new worm greatly resembling bilharzia hematobia occurring in the Chinese and Japanese, but the ova are quite distinctive and confusion of the two would be impossible. It is safe to assume, therefore, that the infection in my cases originated in Porto Rico.

The adult worm, which is never found in the excreta, inhabits principally the portal venous system and its branches. It has been found in the vena cava and elsewhere occasionally, but it has been suggested that, if diligently sought for, it might be more frequently encountered in other organs. Several hundred worms may be present, as many as three hundred having been found.

The following description of the parasite is taken largely from Manson's work on "Tropical Diseases":

The bilharzia hematobia or the schistosomum hematobium is a distome and is bisexual. The male is white, cylindroid, and from 11 to 15 mm. long by 1 mm. broad. There is an oval and ventral sucker placed close together. The body of the worm is flat and infolded, forming a gynecophoric canal, in which the female is inclosed during copulation. The female is longer than the male, measuring about 20 mm., and it is darker and filiform. The genital openings are situated just back of the ventral sucker. The ovum is oval and measures about 0.16x 0.06 mm. It presents a terminal or lateral spine, as the case may be, which difference has never been satisfactorily explained. When found in the urine, the ovum invariably shows the terminal spine, but when obtained in the feces the spine is placed laterally. An exception to this rule has been recently noted by Duncan,[9] who found in the urine of a case of bilharziosis eggs with lateral spines.

Considerable variation in the size of the ova may be observed. The egg often contains a ciliated embryo which, in mature specimens, may escape through a longitudinal break in the shell and swim about, frequently changing its shape. This process is expedited by adding fresh water to the specimen.

The life history of the embryo is practically unknown. In all probability some fresh water animal acts as an intermediate host.

The mode of infection can not be understood until the extracorporeal life of the parasite is more fully demonstrated. Infection is supposed to occur through the drinking water, and, according to Loos, possibly directly through the skin. The symptoms are produced by the passage of the ova through the tissues, the sharp spinous process probably being an important factor. It appears that the vast majority of persons infected with bilharzia hematobia present no symptoms whatever. Vague pains in the back and slight malaise may be all that is complained of. In the small percentage of cases in which definite symptoms occur any degree of severity may be observed from an occasional slight burning on urination, with possibly a few drops of blood at the

* Read before the California Academy of Medicine.

1. Lancet, Oct. 10, 1903.
2. Trans. N. Y. Surg. Soc., Oct. 23, 1895.
3. Med. Rec., April 3, 1897.
4. THE JOURNAL A. M. A., Feb. 17, 1900.
5. Proc. N. Y. Path. Soc., April, 1903.
6. Boston Med. and Surg. Jour., vol. cli, 1904.
7. British Med. Jour., Dec. 20, 1902.
8. British Med. Jour., Jan. 7, 1905.
9. Trans. Clin. Soc., London, vol. xxxv., p. 187.

end of the act, to the most intense suffering with almost incessant micturition, causing excruciating pain and accompanied by quite profuse hemorrhage.

The symptoms of cystitis may remain constant, or, what is more probable, remissions and exacerbations may occur. The ureters may become involved in the inflammatory condition and occlusion be produced, either by inflammatory thickening of their walls or by stone formation, hydronephrosis or pyonephrosis resulting.

When the intestine, usually the rectum, is involved the symptoms when present are those of a dysentery of varying degrees of severity. Polypoid growths and excrescences are frequently observed.

Naturally the general health suffers greatly in severe infections, such patients being very susceptible to intercurrent diseases. The prostate or seminal vesicles may become involved, ova then being found in the semen. Urinary fistulæ frequently occur, often in the perineum. Vesical calculi sometimes result, also carcinoma. Ova have been found in the liver and lungs, where, as a rule, they produce no symptoms. They have also been observed in gall stones and recently in the thickened walls of a diseased appendix. Any degree of anæmia may be present, depending on the amount of blood lost.

The blood[10] shows a decided eosinophilia, ranging between 2 and 40 per cent. and averaging about 16 per cent. The increase of eosinophiles occurs usually at the expense of the polynuclear neutrophile leucocytes. The pathologic findings naturally depend on the degree and duration of the infection. Groups of fine granular elevations are found in the mucosa of the bladder, also polypoid masses and adherent strings. Areas of ulceration may occur. Considerable thickening of the bladder walls may be found, the submucosa especially being involved.

The tissues are infiltrated with ova and on sections are dense. Areas of calcification and deposits of phosphates are formed. Sloughing of the thickened walls or of the polyps may occur or the smaller blood vessels may be completely occluded by masses of ova.

The diagnosis is made by finding in the feces or urine the characteristic ova. In cases in which but few ova are passed the last few drops of urine are most likely to show the greatest number.

The prognosis depends on the degree of infection and the effect on the general health. In regard to life it is good, death rarely resulting directly from the effects of this disease. Indirectly and from intercurrent diseases the prognosis may be grave. The parasite may die within the host, and yet results of the disease remain for years. Often the symptoms gradually disappear and the health becomes perfectly restored. Man may harbor the parasite for many years. One case is reported, in which no fresh infection could have occurred, where it was present for nine years.

The treatment is purely symptomatic, no drug having any influence on the parent worm in the portal system. Polypoid growths, calculi, etc., may be removed if necessary and the cystitis or dysentery treated. The symptoms can be relieved or ameliorated, but a cure can not be effected.

Manson, during the recent Lane lectures at Cooper Medical College, emphasized the importance of recognizing this disease from the urinary examination, thereby avoiding unnecessary and perhaps harmful manipulation and instrumentation.

10. Lancet, Oct. 10, 1903.

Of the two cases that I have observed the second showed absolutely no symptoms attributable to the disease; the first showed but few symptoms that could be entirely ascribed to the infection with the distomum hematobium. Both patients were infected with *Uncinaria americana,* and appropriate treatment in that direction relieved practically all symptoms. Both harbored *Tricocephalus dispar,* and in Case 2 *Strongyloides intestinalis* was present.

Both patients lived in Porto Rico until four or five years ago, when they went to the Hawaiian Islands, where they worked on the sugar plantations. About a year ago they came to San Francisco.

CASE 1.—The patient, referred to me in February, 1905, for treatment of uncinariasis, was a male, aged 25, married.

History.—**He enjoyed perfect health until two years ago, while in Honolulu, when there appeared abdominal pain, weakness, palpitation and frequent bloody stools, numbering from eight to twenty-eight a day. This condition has remained practically the same until the present time.**

Examination.—**There has been some loss of weight. The examination showed moderate anemia, great weakness, abdominal distention and tenderness. The stools contained small amounts of mucus and blood and showed ova of uncinaria, ova of the whipworm and very few ova of the *Distomum hematobium.***

Treatment.—**After ridding the intestine of the uncinaria, practically all subjective symptoms disappeared.**

Result.—**There was a gain in weight of ten pounds and the patient felt perfectly well, except for occasional attacks of diarrhea. Occasionally a trace of blood is observed in the stools and a reaction for occult blood is at times present. Ova of bilharzia and of the whipworm are still present.**

CASE 2.—There were no symptoms due to the bilharzia infection.

Eosinophilia was observed in both of these cases, but the presence of other parasites made it impossible to know what relation it had to the distomum hematobium.

In neither case was anything abnormal found on rectal examination.

Manson, while in San Francisco, examined the ova and pronounced them similar to those he had observed in his West Indian case. He is of the opinion that the lateral-spined ova are produced by a different species of worm from the one producing the terminal-spined eggs. Catto's discovery of a very similar parasite, but with a quite different egg, would lend color to this view. It seems impossible to account for the radical difference in the shape of the eggs and the constancy with which one apears in the urine and the other in the feces under any other hypothesis.

In my own cases I have observed that the embryo does not develop so rapidly, and when developed does not leave the shell and become free as in the terminal-pointed eggs. Specimens have been kept for weeks and months diluted with water, some in the incubator and others at room temperature, but in no case has a motile embryo been observed nor has a ruptured shell or free embryo been encountered giving evidence of motility.* Artificially the shell has been ruptured and the contained embryo expressed, but all have been motionless. This is quite a different course from that pursued by the terminal-spined variety, in which there is abundant evidence of considerable motility. This, I believe, is further evidence that a different species of worm produces the lateral-spined ova, at least that found in the Porto Rican.

* Since writing the above a few ruptured shells have been observed in a culture four months' old; the embryos could not be found.

New Instruments

NEW NASAL SNARE.

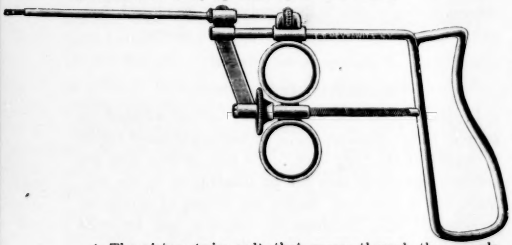
T. EDWARD DUFFEE, M.D.
WINCHENDON, MASS.

This is one of a series of instruments designed for nose and throat work, the special feature of each being the "pistol grip" handle, which allows the operator an unobstructed view of the field of operation and an easy natural position which does not cramp the hand or fingers. The nasal snare shown here is very light, being made from nickled tubular brass, is well reinforced, exceedingly strong and durable, and I believe embodies several features that will make it a valuable instrument.

1. The direct draft decreases resistance, and with the index and middle fingers in the rings the operator gets a purchase which makes a much more powerful snare than any with which I am familiar.

2. The double carriage avoids binding when traction is made, at the same time reinforces the whole instrument so there is no springing even when considerable force is exerted.

3. When greater force is needed the large thumb screw (follower) is easily operated by the free hand.



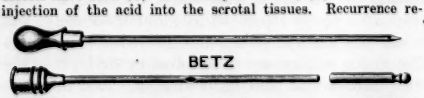
4. The piston (wire rod) that passes through the cannula or barrel is adjusted by another smaller follower set inside a slot on top of the carriage so it can be made any length desired by simply turning the thumb screw (follower), at the same time it is held securely in place, thus avoiding slipping or flying back or out. At the distal end of this rod there are two small eyes where either end of the wire after being cut the length desired may be threaded and bent so as to lay close to the rod, then drawn just inside the barrel (cannula). This method of threading is a feature that saves much trouble and is common to one or more snares now in use. After being used the piston can be very readily pushed back to be rethreaded if desired.

5. It has no nuts to work loose, no wires to protrude or slip and its general simplicity of construction will, I believe, appeal to the busy and practical operator.

A NEW INSTRUMENT FOR THE CURE OF HYDROCELE.

WILLIAM T. BELFIELD, M.D.
CHICAGO.

The cure of hydrocele by injection with carbolic acid has obvious advantages over the cutting operations. Its serious defects have been (1) uncertainty of a cure, (2) unintentional injection of the acid into the scrotal tissues. Recurrence results from failure to destroy the serous surface, and this in turn from incomplete removal of the albuminous hydrocele fluid, an adherent layer of which protects the serous surface from the caustic effect of the acid.



These defects are remedied by the following method with the instrument herewith pictured, whose distinctive feature is the window in the canula.

METHOD OF USE.

The distended scrotum is transfixed from above downward; after withdrawal of trocar and escape of fluid, the lower end of the canula is closed by the cap and the sac is distended with warm salt solution injected through the upper end. Removal of the cap allows the solution to escape; and this flushing of the sac is repeated until the escaping water shows only a trace of albumin by the nitric acid test. The cap being replaced, an ounce or more (according to capacity of sac) of carbolic acid—pure or 95 per cent.—is injected, the scrotum thoroughly manipulated to secure contact throughout, and the acid allowed to escape; residual acid is neutralized by injection of alcohol; after escape of latter the canula is withdrawn and punctures are sealed. Confinement to the house is unnecessary. The fluid which refills the sac in the next few days will be absorbed, but is better removed by a simple puncture.

This method, employed in 17 cases without recurrence, seems to offer all of the good and none of the evil features of the various cutting operations for simple hydrocele.

A SIMPLE NEEDLE-HOLDER.

WILLIAM E. GROUND, M.D.
SUPERIOR, WIS.

The multiplicity of needle-holding devices attests the lack of an instrument that meets the requirements of the busy surgeon. Most of them, if so constructed that they will hold a needle securely, are complicated and clumsy, requiring an unnecessary loss of time in locking and unlocking. A great deal of ingenuity has been expended on the construction of a jaw that would hold any needle and with this have gone complicated-locking mechanisms, so that when in actual use the average needle-holder was about as unhandy as it was possible to make a useful article.

The different patterns of needles are as varied as are the needle-holders, so that the technic of wound suture is anything but satisfactory to the majority of operators.

It has been my object to simplify both needles and needle-holders and to limit the kind used to a few effective styles of needles, and to devise a needle-holder with which these may be handled with the utmost ease and facility.

A few years ago it occurred to me that if I had a needle-holder that would fit naturally in the hand, so that the hand could be used in an unconstrained position, I could handle any needle dexterously without recourse to catching devices, thus rendering the instrument simple, efficient and time-saving. I therefore turned my attention to arranging a handle to different styles of jaws already in use, and finally adopted the style shown in the illustration. I have used this instrument for several months and it has greatly facilitated the application of the needle and suture. The handle fits nicely in the hand, and with the hand in a natural position the shaft of the needle-holder is parallel with the forearm; in fact, is a direct continuation of it. With a full curved needle in use a mere rotation of the forearm sends the needle through the tissues, and when the hand is relaxed the holder flies open and is ready to grasp the needle as it emerges and to repeat the process with no loss of time caused by the locking and unlocking of catches.

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SATURDAY, APRIL 7, 1906.

THE SERUM DISEASE.

The appearance of rashes after the injection of alien blood in human beings was noted as early as 1874, but it is only since the introduction of serotherapeutic measures that rashes and other local and general phenomena supervening on the injection of animal serum, most commonly equine, has attracted general notice. Pirquet and Schick, in Vienna, recently issued a monograph on this "Serum Disease," a brief discussion of some phases of which may not be without interest.

The symptoms traceable to the single injection of serum usually appear after an incubation period of from 8 to 12 days. Sometimes the general symptoms are preceded by a prodromal sensitiveness and slight redness of the skin above the point of injection associated with a moderate swelling of the regional lymph nodes. Fever is the most constant sign, commonly remittent but sometimes intermittent toward the end. A high fever usually accompanies morbilliform eruptions. The rashes vary not only in different individuals but even in the same person. The most common type is the urticarial. When generalized the eruptions tend to be symmetrical; their duration rarely exceeds three days. Swelling of the lymph nodes is one of the most important signs in both the diagnostic and the prognostic sense; it may become more or less generalized; its subsidence indicates the end of the disease. Articular involvement is less frequent; the joints most commonly involved are the metacarpophalangeal, the wrist and the knee. The salicylates have no effect on the joint symptoms. Edema is constant, usually in the same location as the edema of renal origin, and sometimes succeeded by a slight albuminuria.

In those receiving more than one injection of serum the symptoms may appear almost at once or in four or five days after the last injection. According to Pirquet and Schick the "immediate reaction" is the rule when the patient receives a large dose of serum for the first time, followed by a second injection in from three to eight weeks, while the "precocious reaction" occurs commonly when there is a longer interval between the two injections.

Years ago (1895) Heubner and Bókay first showed that the specific antibodies in serum play no part in producing the symptoms referred to in the foregoing. Recently Hamburger and Moro traced the eruptions to the union of the precipitins, formed in the injected body, with precipitable substances still remaining as residues, so to speak, of the foreign (horse) serum, the precipitates so formed causing mechanical obstructions to the circulation in the skin and possibly elsewhere. There is no constant relation, however, between the existence of precipitins and the symptoms of serum disease. Thus the precipitins usually pass out of the blood in from five to nine weeks after the first injection of the serum, while the immediate reaction referred to may appear even after twice as many months. Furthermore, eruptions and other symptoms may occur after one injection in individuals whose sera contain no precipitins, and, reversely, symptoms may fail to develop in patients whose sera contain precipitins in abundance. Hence, we are without any satisfactory explanation of the genesis of the serum disease. It remains to be seen whether the concentration of diphtheria antitoxin by means of Gibson's method of precipitation will remove fully the substances that give rise to the reactions in the injected organism comprised under the term serum disease.

HARMONY VERSUS STRIFE.

Profound economic reforms are seldom effected by force of arms; great economic problems are never solved by means of the "big stick." So true is this that one searches history in vain for an illustration to the contrary. It is true that, during the process of evolution, occasionally and incidentally, violence has occurred which has resulted in some great economic or sociologic movement. In all such instances, the violence has been due to other causes, or has, *per se*, had little or nothing to do with bringing about the result so far as economic change is concerned. During the past generation economic changes and reforms have been brought about in some parts of England and in continental Europe which seem almost incredible to one who hears of them for the first time, yet so quietly has this been done that scarcely a word of it all has reached us, and doubtless less than 1 per cent. of the people of this country have the slightest knowledge of the bare existence of these sociologic movements. Tremendous as these movements have been, with the resulting enormous betterment of certain classes of laboring people, no single act of strife worth noting has marked their progress.

Serious economic problems confront the medical profession of this country, and probably the greatest of these is the question of lodge and similar contract practice. It is purely a problem in economic sociology, and to one who gives it careful thought it becomes evident that it is a problem not to be solved by strife; the "big stick" can have no place in its solution. That this class of practice is a great and a growing evil probably no one will venture to deny; that it is an evil which disastrously affects the general public more than the medical profession will appear on careful study. When an unlimited amount of service is demanded and paid for by

a very limited compensation, that service will be slighted, no matter how conscientious the individual performing it may think himself. Any intelligent practitioner who is doing lodge practice often realizes that he is imposed on; that his services and his time are demanded when, under other circumstances, and if they had to be paid for at regular rates, he would not be disturbed. As a result, there is a feeling of resentment and the patient gets scant attention. The patient suffers from his own greed, and the people who participate in this wholesale medical service are really the ones who suffer most.

Indirectly, this class of practice reacts on all physicians and on all laymen. That a certain portion of the community is getting medical attention, of a sort, for a very small cost, soon leads the remainder of the community to believe that it, too, should get its medical attention at a less cost, and there is a demand for lower medical fees. Those who make this demand, however, do not realize that in the end they themselves will have to pay the bill. They do not appreciate the fact that, in order to keep himself up to the highest point of efficiency, the physician of to-day must have a good income. He must study unceasingly; he must constantly add to his equipment, material as well as mental; he must leave his home from time to time and study the work and the methods of other men. These things can only be done if the physician receives sufficient compensation to enable him to take a portion of his time for his own betterment.

It is thus evident that there is the fullest community of interest so far as this question is concerned; the real welfare of the general public, though now they know it not, demands a cure of this evil just as much as does the welfare of the medical profession. It is the duty of the medical profession to settle this and other economic problems affecting the public, and this duty should not be forgotten or ignored. Strife will not cure the lodge practice evil; fighting will not settle economic problems. Harmony and unity in action are the only means by which betterment may be brought about.

And this improvement must have its origin in the particular community interested; the harmony must be that of the local profession. The county medical society is, or should be, the most potent agent for effecting these economic changes. In the county society should be secured that harmony and unity of purpose and action which the welfare of the people demands. State associations can do but little; the American Medical Association can do no more; it is all in the hands of the physicians in each county. The substitution of friendly feelings for jealousy and animosity; the replacing of strife by harmony, through the knowledge of one another gained in the county society—in other words, the bringing about of an actual community of interest—will see the absolute eradication of the "lodge practice" evil.

THE QUESTION OF RECREATION.

The dependence of good health on recreation has always been recognized, though it is clear that there have been differences of opinion as to what constitutes recreation. In our day the word calls up visions of the tennis court, the gridiron or the golf links, and is generally used synonymously with sport, but it must not be forgotten that widespread as is the craving for exercise there are some who prefer the pleasures of the library or the card room. Women, while they are much more sensible regarding rational exercise than in former generations, are still too apt to regard a cooped-up afternoon at cards in a stuffy and poisonous atmosphere as recreation, and it can not be denied that the sterner sex offend the dictates of physiology almost as frequently. Even in medical meetings we have known listeners to be lulled to sleep by the carbonated air of the meeting hall. The matter of recreation has been discussed recently before the American Academy of Medicine[1] in a series of papers which attack the problem from different sides.

Used in the sense of exercise, the physiologic effects of recreation are manifest and obvious. To the individual who spends his days cooped in the counting room, the exercise of the muscles, especially in the open air, has a stimulating effect on the circulation, the respiration, and the muscular metabolism, promotes the oxygenation of the blood and increases the appetite. From the psychic side it is important that the exercise be accompanied by a certain mental stimulus. To exercise for exercise's sake is a tiresome matter, but to take exercise in the form of a game which supplies a certain element of competition, and requires mental and physical adroitness, is a pleasure. In these days of the strenuous life we are apt to be strenuous in our play as well as in our work, and it is important that we do not take our pleasures too seriously and degrade them below the level of true sport by a policy of "win at any price."

In considering the effect of exercise on the nervous system—and we must not forget that in the end the nervous system is the source of all energy—we should take into account the fact that different occupations make a call on the energy of different areas in the brain. In exercise we must attempt to rest the areas used in the daily routine and to bring into play different areas. Naturally muscle workers do not require the same sort of recreation as brain workers. In fact, the two classes need forms of recreation almost diametrically opposed. In adults, personal preference plays so strong a part that definite rules can not be formulated.

Recreation in connection with educational institutions requires special consideration, both because we are dealing with immature bodies and because the ethical aspects of play must be considered. The recent outbreak of public opinion regarding football is largely due to the fact that many of the casualties could

1. Bull. Amer. Acad. of Med. 1906, vii, 269.

have been prevented by restricting the game to the physically mature and that the ethical attitude of college men has been visibly debased by the game.

As physicians we are constantly preaching the doctrine of recreation, which we almost as constantly fail to practice. The fact is that there is a great need in our cities of means by which the mass of men can cheaply and conveniently get outdoor exercise. It is an expensive luxury for an individual in a sedentary business to keep well in a large city. The few athletic clubs which exist are as a drop in the bucket and come within the means of the rich only. It is to be hoped that in time the necessity for means of recreative exercise for those living in large cities will be recognized; that athletic outdoor sports may be regarded as necessities, not as luxuries for the well-to-do only.

TINKERING WITH THE PURE-FOOD BILL.

The Pure Food and Drug Bill, known as the Heyburn Bill, passed the Senate more than a month ago, while the House measure, practically identical, known as the Hepburn Bill, is now in committee, where two very important—not to say dangerous—amendments have been proposed. To understand the exact significance of these, it is important to bear in mind that the original measures provide that the examination of foods and drugs shall be made in the Bureau of Chemistry under the direction of the chief, by and with the advice of such experts as he may select for the purpose of determining whether or not such articles are adulterated, misbranded or unwholesome, and that if they are found to be adulterated or unwholesome the information shall be brought before a court which shall determine the facts and impose the penalty after hearing the case. It will thus be seen that the power which was intended to be delegated to the Bureau of Chemistry was in effect that of a grand jury which has no right to render a verdict, but limits its functions to a mere accusation. No usurpation of the judicial function was contemplated and the functions of the courts were left entirely undisturbed.

This bill received the approval of the medical profession, ascertained by a referendum sent into nearly every county in the United States. The enemies of the bill, it seems, have framed an amendment which provides for the appointment of a committee of five experts to consider the question of the wholesomeness of any preservatives or other substance in food, if the manufacturer or other person interested opposing the decision of the Bureau of Chemistry requests reference of the subject to such a commission. This commission is to pass on and essentially to have final jurisdiction on such questions.

There are several objections to this amendment. It limits the Secretary of Agriculture, to whom, as chief of the department which includes the Bureau of Chemistry, is intrusted the execution of the law, to a consultation with only five experts. This is a distinct and hurtful contraction of his present powers and of the powers which it was contemplated to bestow on him by the act as originally drawn. That this is true becomes apparent when it is remembered that he now has the right, which he frequently exercises, to enter into consultation with the ablest experts of the country without numerical limitation. The commission which it is proposed to establish by the amendment, and which would be more or less permanent, is further open to the objection of appointment by strictly political influence, and consequently does not give a guarantee of that careful and severe selection which would be exercised by an executive officer personally responsible for an efficient administration of the law. Furthermore, the proposed commission, vested, as it would be, with distinctly judicial functions, would be so far an infraction of the constitutional rights bestowed on the courts that the entire act would be imperiled.

In view of these facts, it becomes perfectly apparent that, under the guise of apparent fairness, the enemies of the Pure Food Bill, some of them experts employed by large food-preserving establishments, etc., have succeeded in securing the serious consideration of a proposition which in more ways than one would destroy the effectiveness, if not the actual existence, of the proposed law. Members of the medical profession, alive to the enormity of the crimes perpetrated on society through the manufacture and sale of impure foods and impure medicines, should at once and in most emphatic terms bring their forces to bear in an effort to defeat this pernicious amendment.

If, however, the preceding amendment is to be recognized as pernicious, what can be said of the second amendment, which has likewise been brought forward by the enemies of the reform in the manufacture of foods and drugs? Under the bill as first presented and as endorsed by the medical profession, it was provided that the manufacturer of any proprietary medicine containing alcohol or any enslaving drug should publish the formula on each original package. This has prompted the "patent-medicine" men to present an amendment to the effect that when an article contained in any one of these nostrums "be not described in the U. S. Pharmacopeia and in the National Formulary, and be not the prescription of a regularly licensed physician, and if the package fails to bear a statement on the label of the quantity or proportion of any alcohol, morphin, opium, heroin, eucain, chloral hydrate, or other enslaving drug, or any proportion of such substances contained therein, it shall be deemed misbranded; provided, however"—and here is where the quack medicine fiend gets in his work—"the quantity or proportion of alcohol need not be stated when not more than the quantity or proportion prescribed by the U. S. Pharmacopeia or National Formulary, as a solvent or preservative of the actual constituents of the medicines or preparation in such package used, and provided, furthermore"—and here is where the quack

medicine fiend becomes a fiend indeed—"that the quantity or proportion of opium or morphin need not be stated when the contents of the package contain not more than two grains of opium or ¼ grain of morphin to the fluid ounce, or, if a solid preparation, to an avoirdupois ounce."

This is probably the most brazen effort that has ever been made in public to promote and to continue the sale of enslaving drugs—drugs the mere unrestrained and unadvised taking of which by the public establishes the necessity for their continued consumption. The attempt to manufacture drunkards by concealing the presence of alcohol in these preparations under the specious plea that they are necessary solvents of other constituents is simply an attempt to sell poor whisky and to call it medicine. The reference to the U. S. Pharmacopeia and the National Formulary is made simply to throw dust in the eyes of the public and to give to the effort the appearance of a scientific basis, an effort that will deceive none with ordinary intelligence or possessed of the ordinary instincts of honesty and decency. If, however, this phase of the proposed amendment is reprehensible, what is to be said of the proposed attempt to exempt the publication on labels of the most enslaving drugs—drugs the most insidious in their encroachment on the mind and body of their victims. The mere proposition that these drugs, such as opium, morphin, heroin, chloral hydrate, and other narcotics, are to be exempted because they occur only in a certain apparently small proportion is as vicious as it is stupid. To enact such a law would be virtually to grant a license for the unlimited sale of enslaving drugs in a state of dilution. It is well known to every physician, as it ought to be known to every legislator, that when there is enough cocain or morphin in a preparation to do good there is enough to do harm; less than enough to do good is useless.

The foregoing considerations themselves ought to be sufficient to arouse every physician to active antagonism to the proposed measure and to prompt him to insist that his representatives in both branches of Congress shall exert their fullest possible influence not only in defeating the two proposed amendments, but in securing the enactment of the Pure Food and Drug Bill as originally drawn.

AMERICAN MEDICINE BECOMES A MONTHLY.

Our highly esteemed contemporary, *American Medicine*, will shortly cease to be a weekly and will be issued as a monthly medical journal. At the annual meeting of the stockholders the proposition was fully discussed and a large majority favored such a change. While we shall be sorry not to receive *American Medicine* every week, there is a wide field for it as a monthly. Its bright, progressive editorials, dealing with subjects always of great interest and importance to the profession, and its valuable original articles by men thoroughly competent to speak have placed it in a very high position among medical journals of to-day. The acknowledged ability of the editors and the high character of the contributed articles will insure the production of an excellent monthly journal. We wish it success and we trust that it may always stand for everything good and for nothing that in any way will hinder the progressive advance of an enlightened profession.

MARRIAGE OF DEFECTIVES IN NEW YORK.

The public seems to be on the way toward a very sane attitude on the subject of marriage of defective persons, if we may judge by a number of indications. One is a bill now before the New York State Legislature to prohibit the marriage of insane, epileptic, imbecile or feeble-minded persons. If this bill becomes a law, a marriage contracted by such persons will be absolutely void. There is a provision which will allow one to be married if, thirty days before such marriage, one files in the county clerk's office a certificate signed by two physicians stating that cure has taken place and that there is no probability that the previously-existing defects will be transmitted to the offspring. This may be a loophole, but the bill, as a whole, is praiseworthy. The increasing favor with which such measures are regarded is a good sign for the future.

DRUNKENNESS.

The question was recently raised in a British medico-legal society as to the legal definition of when a man is drunk. The result can not be predicted exactly by the amount taken; for example, the judge sitting on the bench may have just taken into his system a much larger amount of alcohol than that which has brought the prisoner before him for judgment. This was considered an injustice. Since the question of individual tolerance is seldom raised, it was urged, the really minor sinner suffers. The point seems to us not well taken. The consequences must necessarily control the legal aspect of the case. In the absence of blue laws, the drunkard is not brought to court because he drank, but because of his condition which threatens peace, order and the safety of others.

DENITROGENIZING THE ATMOSPHERE.

About five years ago a noted English scientist sent out a rather disturbing prophecy that, with the rapidly increasing population of the earth, the wheat supply would become insufficient for lack of nitrogenous fertilizers. The present sources of supply are not inexhaustible, and his prediction excited some attention at the time, though we are not aware that it had any decided bull effect on the wheat market. Now comes another British scientist, Sir William Ramsay, who points out that the air over each square mile of the earth's surface contains enough free nitrogen to afford sufficient plant food for sixty years of the world's needs, and that measures are now under way to bring the atmospheric nitrogen into useful combinations for fertilizing purposes. We could probably spare a square

mile of atmospheric nitrogen once or twice a century without seriously affecting the general average of the atmosphere, and it is probable that, after having served its purpose, it would again, sooner or later, become a constituent of the world's gaseous envelope. It would be interesting, however, to note whether or not any local effects like those imagined by one or two well-known writers of fiction would be the sequence; whether we could repeat "Dr. Ox's" experiment as described by Jules Verne, for example. The vicinity of the nitrogen-combining plants, with their denitrogenized atmosphere, might be utilized as stimulating health resorts if Sir William Ramsay's anticipations are realized. There is room here for considerable fanciful suggestion, to say the least.

A NEW RADIUM DANGER.

The explosion of a glass tube in which a number of milligrams of radium bromid had been sealed up for eleven months is described in a German paper.[1] The tension producing the explosion was estimated at twenty atmospheres, possibly accumulated during that time by the liberation of helium in the tube. As physicians are using radium as a therapeutic agent it is well for them to be advised of this danger, the more so since other instances are said to be on record, and since its high cost will tend to its long keeping. The reporter of this accident, Herr Julius Precht, has undertaken to investigate the ratio in which pressure may develop from radium in a sealed tube. He publishes his experience as a caution to those who are in possession of tubes that have been sealed for a long time.

PULMONARY TUBERCULOSIS IN SCHOOLS.

The fact that phthisis is frequently spread in places where large bodies of people are gathered is too well known to require much emphasis. Schools are undoubtedly prominent in disseminating consumption, and consequently school buildings should always be as well ventilated as possible. There is at all times a considerable amount of tubercular disease among school children. The medical officer of Blackburn, Lancashire, England, in a recent report stated that he found that nearly 10 per cent. of the children examined in some of the schools had pulmonary consumption. In the Paris schools the state of affairs in this respect was even worse, the figures being from 11 to 14 per cent. among boys and from 17 to 20 per cent. among girls. At the International Tuberculosis Congress held in Paris last year the statement was made that one of the most fruitful sources of consumption among school children was the use of school buildings by adults for public meetings. It goes without saying that school rooms require plentiful ventilation, and that if they be filled with people in the evening, as well as in the day-time, that this desideratum is impossible of attainment. A speaker at a meeting of an educational society said that he thought that public meetings should not be permitted in school buildings except in rare cases, and that in order to lessen the dangers after such meetings the schoolroom should be washed with a weak solution of formaldehyd.

1. Physikalische Zeitschrift (Leipsic), Jan. 15, 1906.

THE TUBERCULOSIS EXHIBITIONS.

Both the public and the profession are to be congratulated on the interest that has been taken in the various tuberculosis exhibitions in several of the principal cities of the country. We have commented on those held in the East, and now a successful exhibition has been held in Indianapolis and another is in session in Chicago, both being well attended by the public. This feature of the campaign against tuberculosis is certainly valuable. We should be glad to see similar exhibitions concerning other communicable diseases, such as have been in operation in Germany for some time. The public is ready to be informed on all these subjects, and the medical profession certainly has work to do along this line. We congratulate all those who have labored so faithfully for the arranging and carrying out of these exhibitions and hope that their success will be a stimulus to further work in this direction.

Medical News

ALABAMA.

Coming Convention.—The Medical Association of the State of Alabama will convene at Birmingham April 17.

Established Quarantine.—The Mobile Bay quarantine board has established quarantine against Puerto Cortez, Honduras, on account of the presence of yellow fever at that place.

Personal.—Dr. Thomas J. Springfield, Ensley, who was operated on recently in Birmingham for malignant diseases of the bowel, is reported to be improving.——Dr. T. W. Ayers, Anniston, a medical missionary in Hwang Hien, China, has returned to America on a year's leave of absence.——Dr. William C. Mapes, Scottsboro, is dangerously ill with pneumonia.——Dr. and Mrs. Cunningham Wilson, Birmingham, sailed for Europe March 14.——Dr. Albert E. Meadow, Birmingham, is seriously ill with influenza.

ARKANSAS.

Bequest to Hospital.—Under the provisions of the will of the late Major W. H. Davis $5,000 is bequeathed to the Davis Hospital, to be erected in Pine Bluff.

Change of Meeting Place.—The Arksansas Medical Society will not meet at Pine Bluff on May 8-10, it is announced, on account of insufficient hotel accommodations. The meeting will be held at Hot Springs.

Physicians and Surgeons' Association of Searcy.—This association has been organized with the following officers: President, Dr. John B. Grammer; vice-president, Dr. H. C. Jones, and secretary and treasurer, Dr. Luther E. Moore.

Councilor District Meeting.—A meeting of the Tenth Councilor District Medical Society was held at Fort Smith March 20. Dr. Joseph T. Clegg, Siloam Springs, was elected president; Dr. James A. Foltz, Fort Smith, vice-president; Dr. Charles E. Hurley, Bentonville, secretary, and Dr. Othello M. Bourland, Van Buren, treasurer. The next meeting will be held in Monte Ne.

New Rule in Hot Springs.—Dr. William H. Barry, president of the Government Medical Board, Hot Springs, has issued the following notice:

> Notice is hereby given to all parties whom it may concern that hereafter when a name of a physician is dropped from the list of registered physicians, neither the Department of the Interior nor the board will entertain an application for restoration to such list until the lapse of one year from the date of the dropping of the name from the registered list.

Drumming Prohibited.—The Supreme Court of Arkansas has declared valid the state law passed in 1904, prohibiting the "drumming" of patients to physicians at Hot Springs. The Chancery Court at Hot Springs had declared this law unconstitutional.——Dr. T. B. Ryder, Hot Springs, was arrested March 13, charged with violation of the new city ordinance which provides that any physician convicted of soliciting or drumming patients may be deprived of his right to practice. On March 19 Dr. Ryder was found guilty, fined $100, and his license to practice revoked.

ILLINOIS.

New Maternity Hospital.—Plans are being completed for the Elizabeth Williams Maternity Hospital, to be built adjacent to the Evanston Hospital. The building will be three stories in height, fireproof, and will cost about $25,000.

Few Seek Positions.—Only twelve applicants took the examinations for nurses and chief nurses in the state charitable institutions which were held March 29 by the Illinois Civil Service Commission in Chicago, and at the Illinois Hospital for the Incurable Insane, Bartonville.

Go Abroad.—Drs. Franklin C. Vandervoort, John W. Fulwiler and Robert A. Noble, Bloomington, sailed for Europe, April 3. On March 28 these gentlemen were given a farewell dinner by Dr. Franklin H. Godfrey, at his home in Bloomington. Drs. Ernest Mammen, William E. Guthrie and the departing physicians responded to toasts.

Smallpox.—An epidemic of smallpox is said to prevail at Christopher, and the Illinois Central Railroad has declared a quarantine on that place.——A number of cases of smallpox have been reported at Rushville. The disease is also said to be present at Benton.——Smallpox appeared at Freeport in a factory and a number of persons have been exposed. The usual precautions have been taken to prevent the spread of the disease.

Chicago.

Medical Student Dies.—S. D. Haury, a senior student at the Northwestern University Medical School, who had already obtained an interneship at St. Francis' Hospital, Wichita, Kan., died suddenly in Chicago, March 18, from brain disease.

Fraternity Election.—At the annual meeting of the Rush Medical College Alumni Section of the Alpha-Omega-Alpha Fraternity the following officers were elected: President, Dr. C. Hugh McKenna; vice-president, Dr. R. L. Sensenick; secretary, Dr. William J. Swift, and treasurer, Dr. L. A. Beaton.

Deaths of the Week.—The total deaths for the week ended March 31 was 582, equivalent to an annual mortality rate of 14.80 per 1,000. Pneumonia, of course, led with 102. Consumption held, as usual, the second place, with 70. Then came heart diseases, with 48; nephritis, with 37; violence, including suicide, with 36, and nervous diseases, with 30. Ten deaths were reported from scarlet fever, as compared with one death from that disease during the corresponding week of 1905.

Deaths of the Month.—The total deaths during March were 2,463, equivalent to an annual mortality rate of 14.14 per 1,000, which compares favorably with the rate of 15.33 per 1,000, reported for March, 1905. Among the death causes pneumonia led with 421, consumption coming next with 304. Among other notable death causes were: Heart disease, with 203; nephritis, with 152; violence, including suicide, with 137; nervous diseases, with 129, and acute intestinal diseases, with 114 deaths.

Chicago's Health.—The mortality of Chicago for the first three months of 1906 was at the annual rate of 14.32 per 1,000, a decrease of 6.1 per cent. as compared with 1905. Among the decreased important causes of death were apoplexy, bronchitis, consumption, convulsions, influenza, measles, pneumonia, smallpox, suicide and whooping cough. The causes of death that showed an increase as compared with 1905 were nephritis, cancer, diphtheria, heart diseases, acute intestinal diseases, nervous diseases, scarlet fever and violence other than suicide. The most marked decrease was in bronchitis, and the most pronounced increase, scarlet fever.

Dr. Senn's Vacation.—Dr. Nicholas Senn left Chicago, April 4, for his regular summer vacation, and will return about August 4. He goes to Lisbon, where he will attend the International Medical Congress and deliver the oration on surgery for America, which will appear in THE JOURNAL. He then traverses the Mediterranean, goes through the Suez Canal and the Red Sea, down the east coast of Africa to Beira, then across country to Buluwayo, from there makes a trip to Victoria Falls, on the Zambesi, and then goes to Cape Town, where he takes steamer for England. During his trip Dr. Senn will send THE JOURNAL a report of the International Medical Congress and also occasional letters regarding his tour and the results of his study of the natives and diseases of the countries through which he passes.

Chicago Tuberculosis Exhibition.—An exhibition was opened in the Public Library Building April 2 under the auspices of the National Association for the Study and Prevention of Tuberculosis, the Chicago Tuberculosis Institute and the Illinois State Association for the Prevention of Tuberculosis. The exhibition contains everything pertaining to the cause, nature and effects of tuberculosis, also the means now used throughout the country for its prevention and cure. During the twenty-six days of the exhibition special lectures and conferences on tuberculosis will be held and exhibits will be demonstrated. The chief conferences to be held are those on the "Outdoor Treatment of Tuberculosis," "Workers and Tuberculosis," "Tuberculosis and Charity Organizations," "The School and Tuberculosis," and on April 14 a western tuberculosis conference will be held, over which Dr. H. B. Favill, Chicago, will preside, and at which Drs. Lawrence F. Flick, Philadelphia, and S. A. Knopf, New York, will deliver addresses. The exhibition is open free to the public on week days from 10 a. m. to 6:30 p. m., and also on the evenings on which addresses are to be given.

INDIANA.

Communicable Diseases.—Scarlet fever is said to be epidemic at Sardinia and Greensburg.——Whooping cough and measles are said to be epidemic at Linden.

Discourages Advertising.—The Medical Society of Shelby County has passed a resolution discouraging the use of physicians' names by the lay press, in the reports of deaths, births, accidents, etc.

New Hospital.—The Sisters of St. Francis have purchased two city blocks at Logansport on which a new three-story hospital with accommodations for 100 patients will be erected at a cost of about $50,000.

Osteopath Acquitted.—H. J. Baughman, an osteopath of Connorsville, charged with practicing medicine without a license, was declared "not guilty" March 25. The defendant admitted practicing osteopathy without a license, but claimed that the law passed by the last legislature providing for the practice of osteopathy in Indiana was unconstitutional.

Knox County Society Active.—At the regular quarterl meeting of this society, held in Vincennes, March 13, resolutions were passed urging the passage of the pure-food law, and advocating co-operation with the adjoining counties in maintaining the present fees for life insurance examinations. A committee of five was appointed to investigate any and all contract practice by members of the society and to report to the society.

Endow Fellowships in University.—A Chicago physician who does not wish his name revealed and Dr. Benjamin T. Terry, New York City, have offered to endow fellowships for pathologic research in the Indiana University, Bloomington. The first endowment is for a research fellowship in serum pathology, the second for a similar position in pathologic physiology. The income of each fellowship is $750 a year. These are conditional on the provision by the university of adequate library and laboratory facilities.

February Diseases and Deaths.—During February there were 912 fewer deaths than in February last year, and the disease prevalence was about 30 per cent. less. Pneumonia caused 403 deaths; tuberculosis, 372; violence, 109; cerebrospinal meningitis, 40; typhoid fever, 29; diphtheria, 20; puerperal fever, 14, and whooping-cough, 12. The death rate per 1,000 was 17.2 for cities and 11.7 for the country. Smallpox existed in 15 counties, but no deaths occurred. Of the deaths from violence, 5 were homicides and 20 suicides.

Personal.—Dr. Forbes H. Broughton, Wolcottville, was recently operated on in Detroit for the removal of gallstones.——Dr. Milo Gibbs, Greenfield, is critically ill with neuralgia of the heart.——Dr. Christian B. Stemen, Fort Wayne, completed thirty years of service as surgeon of the Pennsylvania Lines March 10.——Dr. Leo J. Weinstein has been made consulting gynecologist and Dr. Joseph H. Weinstein, attending gynecologist of the University Hospital, Terre Haute.——Dr. Austin Funk, New Albany, has returned from England.——Dr. John E. Owen, Evansville, is seriously ill.

IOWA.

Scarlet Fever.—An epidemic of scarlet fever is reported in Sioux City.

Personal.—Dr. Andrew Marugg, Sherrills, was seriously injured in a runaway accident, March 20.

Hospital Overcrowded.—The State Inebriate Hospital, opened only a few weeks ago, is full to overflowing and the board of control has ordered that no more patients be received until vacancies occur.

Hospital Notes.—The Corning Hospital was opened last week for the accommodation of patients.

Itinerant Practitioners Leave.—The attempts of local physicians of Council Bluffs to force out of practice in that city two itinerant physicians calling themselves "Hot Springs Doctors," have been successful, and one of the individuals has gone to Des Moines, the other to Waterloo.

Hospital Accident Suit.—In the case of Mrs. Jesse Haase, Eldora, against Drs. Morton & Morton, Iowa Falls, in which the plaintiff claimed damages of $25,000 for a fall at the Ellsworth Hospital in January, 1905, the jury gave a verdict for the plaintiff, March 22, awarding her damages of $1,100.

State Asylum Report.—The second biennial report of the State Hospital for the Insane, Cherokee, shows a total of 716 patients in the hospital and a daily average for the two years of 66. The percentage of recoveries was about 27 and of deaths 5.7. The average age at death was 49 years, and 26 per cent. of the mortality was due to tuberculosis.

Summer School at State University.—The College of Medicine at the State University of Iowa, Iowa City, has decided to give a summer course. Work will be done in the departments of clinical medicine, operative surgery, pathology, bacteriology, ophthalmology, otology, rhinology, laryngology, experimental pharmacology, sanitary chemistry and surgical and applied anatomy.

KENTUCKY.

Sanatorium Bill Passes.—The state senate has passed a bill appropriating $20,000 to establish a state tuberculosis sanatorium. The bill originally called for $50,000, but the committee thought the former sum would do for a beginning. The committee to locate and build the institution will be appointed by the governor.

Personal.—Dr. John P. Ferguson, Louisville, was thrown from his carriage, March 1, and fractured two ribs.——Dr. J. Halpin O'Reilly is critically ill with pneumonia.——Dr. H. C. Lassing, Beaver Lick, was recently stricken with paralysis.——Dr. John Q. Taylor, Paducah, has gone to California for a month's vacation.——Dr. James A. Averdick, Covington, is suffering from septicemia.

LOUISIANA.

Acquitted.—Dr. John B. C. Gazzo, Thibodeaux, charged with killing Clerville Guedry near Raceland in July last, has been acquitted.

Gives Vase to Hospital.—The French government has presented a beautiful Sevres vase to the Eye, Ear, Throat and Nose Hospital, New Orleans.

Reward Not Claimed.—The $5 reward offered by the New Orleans board of health for the first live stegomyia mosquito found in New Orleans in March has not been claimed.

Quarantine Against Cuba and Central America.—The State Board of Health has decided that the restrictions against Cuban and Central American ports shall become operative on and after March 15.

Found Guilty of Murder.—Dr. Albert P. Bush, Sligo, was found guilty, at Shreveport, March 7, of the murder of Jack C. Guice, an electrician, on Dec. 16, 1904. The jury returned a verdict of "guilty as charged, without capital punishment."

Quarantine Station Discontinued.—The State Board of Health has decided that the Port Eads quarantine station shall be temporarily discontinued, and that the inspection previously done at this post shall be carried out at the upper quarantine station.

Suspicious Case Not Yellow Fever.—In the case of Zeles Ebernz, supposed to have had yellow fever, the patient died, March 18, at the Charity Hospital, New Orleans. The autopsy proved that the man did not have yellow fever, but died from catarrhal jaundice.

Presentation to Dr. White.—As a token of appreciation from the citizens of New Orleans, a superb silver service was given to Surgeon Joseph H. White, United States Public Health and Marine-Hospital Service, March 24. The address of presentation was made by Col. Charles Janvier, and Dr. White made a suitable response.

Personal.—Dr. C. J. Gremillion, Alexandria, president of the local board of health, is recovering from an attack of appendicitis.——Dr. Richard O. Simmons, Alexandria, has been elected president of the Rapides Parish board of health, succeeding Dr. A. R. Chapin.——Dr. Simon G. Gill, New Orleans, has been ordered to Havana as resident inspector of the State Board of Health at that point.——Dr. Elijah M. Ellis, Crowley, has resigned the presidency of the local board of health and will make his home in Fort Smith, Ark.

For Yellow-Fever Inspection and Publicity.—At a representative gathering of the citizens of New Orleans, March 6, the following preamble and resolutions were adopted:

WHEREAS, It is essential to the welfare of this community that the city of New Orleans should be rendered immune against yellow fever; and,

WHEREAS, This condition is entirely possible by the strict enforcement of the anti-mosquito ordinance and such other sanitary measures as can be readily undertaken; therefore be it

Resolved, That this meeting of citizens does hereby earnestly urge that each of the ward organizations immediately reorganize and actually prepare to perform a thorough inspection service. Be it further,

Resolved, That this meeting pledges itself to furnish all the funds necessary, and requests the following citizens to form a central committee, having power to add to its numbers, for the purpose of handling this campaign.

At the regular meeting of the Orleans Parish Medical Society, March 22, the following preamble and resolutions were unanimously adopted:

WHEREAS, The experiences of the past summer furnished ample corroboration of the correctness of the mosquito doctrine of the propagation of yellow fever, also the importance of prompt and full reports of cases of the disease, as well as the danger of early and mild cases; be it

Resolved, That it is the sense of this society that it is the solemn duty of physicians to report immediately all cases of yellow fever, or suspected yellow fever, occurring in their practice. Be it further

Resolved, That any member of this society failing to make such a report will be deemed guilty of unprofessional conduct, and be tried for such by the judiciary committee according to the by-laws of this society. Be it further,

Resolved, That the members of this society urge their friends, their patients and the public in general to keep all patients completely protected by mosquito bars. Be it further

Resolved, That these resolutions be furnished to the daily press for publication.

MAINE.

Hospital Completed.—The Aroostook Hospital, Houlton, is completed and will be conducted by Drs. Thomas S. Dickison and Gibson.

Fire at Hospital.—A fire in Trull Hospital, Biddeford, March 14, caused damage amounting to $15,000. The 17 patients were removed without casualty.

Hospital Corps Instituted.—General orders have been issued by the adjutant general providing for the organization of a hospital corps in the National Guard of the State of Maine.

Personal.—Dr. Charles A. Packard, dean of the medical faculty of Bath, was given a complimentary dinner by the physicians of the city, March 7.——Dr. Martin P. Judkins, Rockland, is convalescent from his recent operation.

MARYLAND.

State Tuberculosis Sanatorium Assured.—The legislature has passed the bill appropriating $100,000 for a state sanatorium for consumptives.

Addition to Hospital.—The regents of the University of Maryland have purchased considerable property in the vicinity of the institution for the benefit of the school of medicine. A large addition will be erected to the University Hospital, Baltimore, in the near future.

Personal.—Drs. Henry Barton Jacobs and John C. Hemmeter, Baltimore, will visit Europe this summer. Dr. Hemmeter will deliver the annual oration before the Ohio State Medical Society at Canton, Ohio, May 9.——Dr. Eugene Jones of Kensington has been very ill with rheumatism.

Sent to Prison.—Dr. John H. Tompkins, a colored physician of Cumberland, who at his second trial for causing a death by criminal operation, was found guilty and sentenced to imprisonment in the penitentiary for six years. His accomplice, a druggist, received a sentence of imprisonment for ten years.

Milk Supply of Baltimore.—The seventh of the course of lectures being delivered weekly at Johns Hopkins University was given by Assistant Commissioner of Health, C. Hampson Jones, M.D., April 3, on "The Present Aspect and Needs of the Milk Supply of Baltimore." Dr. Lewellys F. Barker presided.

Appropriation for New University Buildings.—The trustees of Johns Hopkins University are endeavoring to secure an appropriation of $100,000 from the legislature, so that with this sum as interest, they may be able to borrow something like a million dollars which they need for the construction of buildings on the new university site in the northern suburbs. Two years ago this beautiful site of nearly 200 acres was given to the university by some of its friends, but removal to it has thus far been impossible from lack of funds necessary to erect the buildings.

MICHIGAN.

Smallpox.—An outbreak of smallpox is reported in at least three families in Ingalls.

Fire Damage.—Fire on March 18 did damage to the extent of $500 to the residence of Dr. William A. Crandall at Hesperia.

Epidemic Disease in Kalamazoo.—Kalamazoo reports 300 cases of German measles and 200 cases of whooping cough, with a rapid spread of the diseases.

Jury Disagrees.—In the case of "Dr." Allen Raymond, Battle Creek, charged with violation of the state medical law, the defendant admitted the facts, but the jury disagreed after six hours' deliberation.

Wins Libel Suit.—In the suit of Dr. Charles J. Sorsen, Calumet, against the editor of a Finnish paper at Hancock, in which $10,000 damages was claimed for injury to the reputation of the plaintiff by the publication of an alleged libelous article, the jury returned a verdict awarding him $3,000.

Incorporated to Wipe Out Quackery.—The Calhoun County Medical Society has been incorporated with the following officers: President, Dr. Herbert A. Powers; secretary, Dr. Eugene Miller, and treasurer, Dr. Clarence G. Vary, all of Battle Creek. The society has decided to make an appropriation for prosecuting violators of the registration laws.

Women Physicians Organize.—The Women's Academy of Medicine, Detroit, was organized March 13, with the charter membership of 14. The following officers were elected: Dr. Lucy J. Utter, president; Dr. Mary G. Haskins, vice-president; Dr. Anna M. F. Starring, secretary; Dr. Minta B. Kemp, treasurer, and Drs. Florence Huson, Louise R. Thompson and Isabella Holdom, censors.

Hospital Notes.—The ways and means committee of Grand Rapids has appropriated $20,000 for a contagious disease hospital.——St. Mary's Hospital, Marquette, was formally opened February 27.——The Port Huron Hospital and Home received a check for $1,000, the proceeds of the annual hospital ball.——Mr. George F. Sonner, Benton Harbor, has given $5,000 toward the erection of a new $15,000 hospital in Benton Harbor, provided that $10,000 additional be raised before July 1.

Personal.—Dr. William H. Van Slyke, Hancock, suffered severe injuries in a fall.——Dr. Michael P. Fenelon, Escanaba, has been elected physician of Delta County.——Dr. Mason W. Gray, Pontiac, has been elected delegate of the Oakland County Medical Society to the state medical society, and Dr. Clark J. Sutherland, Clarkston, alternate.——Drs. James F. Breakey and R. B. Canfield, Ann Arbor, have been elected delegates, and Drs. Andros Gulde, Chelsea, and John A. Wessinger, Ann Arbor, alternates, from the Washtenaw County Medical Society to the state medical society.——Dr. Frederick Townesend, Sault Ste Marie, has been appointed local surgeon of the Soo Line and the Duluth, South Shore & Atlantic.

NEBRASKA.

May Not Practice.—The State Board of Health has decided that Dr. Albert C. Welch, Haigler, must not practice medicine at this time. He has, however, been given leave to file an amended petition for a license.

Hospital News.—Wesleyan Hospital, Lincoln, opened for the reception of patients last week.——It is reported that the Hospital for Crippled Children, Lincoln, will be obliged to close because of lack of funds for carrying on its work.

Pension Examiner Exonerated.—Dr. Edgar D. Cummins, Plattsmouth, a member of the pension medical examining board, charged with prejudice against Union soldiers applying for pensions, has been exonerated, after investigation by special agents of the department.

Personal.—Drs. A. E. Gerish, Auburn, and James Kay, Nemaha City, have been appointed physicians of Nemaha County.——Dr. William B. Kern, superintendent of the Hastings Hospital for the Chronic Insane, is seriously ill and has been taken to Rochester, Minn., for operation for appendicitis.

NEW HAMPSHIRE.

Suit Settled.—The suit of Lewellyn F. Hobbs, Northampton, against Dr. Joseph W. Odell, Greenland, for alleged malpractice, has been settled out of court.

Oppose Anti-Contract Action.—The fraternal orders of Concord have adopted resolutions protesting against the actions of the Central District Medical Society in opposing contract medical practice, and resenting this action as a conspiracy against fraternal organizations and physicians connected therewith.

Hospital Staff Reorganized.—The medical staff of the Laconia Cottage Hospital has been reorganized with Dr. Alfred W. Abbott, president, and Dr. Alpha H. Harriman, secretary.

Personal.—Dr. Stephen Young, Dover, slipped and fell, breaking his right leg at the ankle.——Dr. David P. Goodhue has completed 40 years of active practice at West Springfield.——Dr. Albert J. Nute, city physician of Portsmouth, has resigned, and Dr. Andrew B. Sherburne has been elected to fill the unexpired term.

Hospital Notes.—During 1905, 318 patients were admitted to the Mary Pillsbury Hospital, Concord. The permanent funds of the hospital have been increased by a legacy of $1,000 from the estate of Henry W. Randlett and a donation of $4,000 by the late Emeline Harvey Sage of Hopkinton. The children's free bed fund has been completed by the payment of $5,000 to the treasurer.——Wentworth Hospital, Dover, erected at the cost of $70,000, is almost completed and will be opened in June. The hospital has accommodations for 35 patients.——Nashua Hospital has elected Dr. Isaiah G. Anthoine, clerk, and Drs. Augustus W. Shea, Bradford Allen, Herbert L. Smith, Benjamin G. Moran, Sam S. Dearborn and Isaiah G. Anthoine, trustees.

NEW YORK.

Coroners' Physicians Increased.—The Dowling bill, which provides for an increase in the number of coroners' physicians to four in Manhattan, two in the Bronx, four in Brooklyn, three in Queens and two in Richmond, passed the assembly, March 26.

Against the Transfer of Patients.—A bill has been introduced into the legislature by Senator Fitzgerald imposing a fine of $5,000 or imprisonment for five years for any one in authority in a New York hospital who orders the removal to another hospital of a patient who is seriously ill.

Osteopathy Bill Opposed.—The county medical society at its meeting March 26, decided to oppose the bill now before the assembly entitled, "An act regulating the practice of osteopathy in the State of New York." This society construes the bill as it now stands as an act permitting the licensing of osteopaths to practice medicine without an examination.

New York City.

Smallpox on Liner.—A case of smallpox of about four days' duration was discovered among the passengers of the steamer *Rhein*, which arrived at quarantine March 28. About 230 of the 2,399 pasengers on this vessel were sent to Hoffman Island.

Want Prisoners Cleaned.—A committee has been appointed by the board of magistrates to consult with the board of health and endeavor to make some arrangement for the washing and disinfection of the filthy prisoners whom the police have been in the habit of bringing into court.

Criminal "Doctors" Out of Business.—It has been announced by the postmaster-general that 52 illegal "medical offices" in New York and Brooklyn have been practically put out of business by the efforts of the postmasters. The business done by some of these concerns was large. As many as twenty criminal operations a day are said to have been performed by some of them, and the incomes ranged as high as $2,000 a week.

The Smoke Nuisance.—Last year 187 smoke nuisances were abated by the board of health, but these were chiefly small concerns. It is now stated that the board will proceed against big corporations. Summonses are about to be issued to the Interborough Company, the Edison Company and others. The Interborough Company once defeated the health department in an action, but the health department is hopeful of getting a favorable decision this time.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended March 24, 1,952 cases of measles, with 47 deaths; 453 cases of tuberculosis, with 200 deaths; 370 cases of diphtheria, with 50 deaths; 209 cases of scarlet fever, with 8 deaths; 36 cases of cerebrospinal meningitis, with 23 deaths; 25 cases of pertussis, with 2 deaths; 15 cases of typhoid fever, with 5 deaths; 159 cases of varicella, and one case of smallpox, a total of 3,220 cases, with 335 deaths.

To Visit European Hospitals.—The building of hospitals for contagious diseases in various parts of the city and a tuberculosis sanitarium at Otisville, together with the fact that a municipal filtration plant is under consideration, has decided the board of health to send Dr. Herman M. Biggs, chief med-

ical officer of the board, to Europe to inspect the hospitals and filtration plants there. On the return of Dr. Biggs, in about three months, Commissioner Darlington will take up the question of a filtration plant with the board of estimate.

Athletic Boys Must be Examined.—The Public School Athletic League will hereafter not permit a boy to take part in contests unless he is certified as to physical condition by a physician of the department of health. It has been realized that the one flaw in the work of the athletic league was the fact that boys who were unfit physically could not be barred out of the games. The examinations will be made by the school physicians, who will add to their usual inquiries, special tests to determine whether or not the child shall be allowed to enter contests.

The Overtrained Nurse.—This was the subject of a symposium at the New York Academy of Medicine on March 29. With only one exception the speakers were of the opinion that the nurse of to-day was overtrained. There was complaint that in the present system there is too much theory and too little practice. Drs. W. Gilman Thompson, A. Alexander Smith, Robert Abbe and Arpad G. Gerster pleaded for fewer subjects and more thorough teaching. Dr. Smith spoke for the old-fashioned nurse whose principal asset was her sympathy and proper equipment of character.

Will Subpoena Medical Staff.—An investigation has been conducted in the case of Walter Crocker, who was injured by a car, taken to Roosevelt Hospital and then transferred to Bellevue, dying fourteen minutes afterward. The coroner states that the whole medical staff of Roosevelt Hospital who were on duty at the time of the transfer will be subpoenaed, and that he will compel them to produce the books that he may view the record in every suspicious case of transfer. It was stated at Bellevue that Crocker's death was due to consumption, but the coroner's physician found that it was due to a fracture of the skull.

NORTH CAROLINA.

Fire Endangers Hospital.—A fire which caused a loss of $250,000 in Fayetteville, March 25, placed the Highsmith Hospital in such imminent peril, as the flames were attacking the building on three sides, that it was necessary to remove the patients from the building.

Address Graduating Classes.—Dr. Robert Lee Payne, Norfolk, Va., has accepted an invitation to deliver the annual address to the graduating class in medicine at the University of North Carolina, Chapel Hill, May 11.——Dr. Benjamin K. Hays, Oxford, will deliver the annual address to the graduating class of the North Carolina Medical College, Davidson, at its commencement next month.

Prevention of Tuberculosis.—At the last session of the Medical Society of the State of North Carolina a paper was read by Dr. Martin L. Stevens, Asheville, advocating the organization of a North Carolina Society for the Prevention of Tuberculosis. The society authorized the appointment of a committee to consider plans for organizing this society, to report to the state society at its next meeting in May. The following committee has been appointed: Dr. Martin L. Stevens, Asheville, chairman, and Drs. Richard H. Lewis, Raleigh; George G. Thomas, Wilmington; J. Howell Way, Waynesville; James A. Burroughs, Asheville; James M. Parrott, Kingston; Charles M. Strong, Charlotte; W. H. H. Cobb, Goldsboro; Benjamin K. Hays, Oxford; Albert Anderson, Wilson; Charles A. Julian, Thomasville, and Watson S. Rankin, Wake Forest.

PENNSYLVANIA.

Health of the State.—The interest taken by the medical profession of the state in the collection and compilation of data concerning the prevalence of contagious disease in the state is becoming more evident from the reports handed in each month. During the month of February there were reported to the health department 12,539 cases. Of these 11,011 were in cities and boroughs, and 1,528 in rural districts and townships. There were 2,280 cases of typhoid fever reported, of which only 116 were from rural districts, while 2,172 were from cities and boroughs. Typhoid fever during the month was reported in 51 counties, being particularly prevalent in Philadelphia, Montour, Fulton, Erie and Allegheny. Measles continues to be epidemic throughout the state, the number of cases reported representing 45 per cent. of the total diseases reported from all causes. Diphtheria shows a decrease of 157 cases for the month. There were in all 885 cases reported. There were 875 cases of scarlet fever, a decrease of 4 over those reported in the previous month. There were only 9 cases of smallpox reported from the entire state, 6 of which were from cities and boroughs and 3 from the rural districts.

Philadelphia.

Keen to Close Hospital.—Dr. W. W. Keen announces that he will close his private hospital permanently after June 1. Thereafter his patients will be taken care of in the Jefferson Medical College Hospital.

Personal.—Dr. John H. Musser addresed the Alumni Association of the University of Pennsylvania in Brooklyn, N. Y., March 22.——Dr. Francis D. Patterson is confined to his home with a punctured wound of the foot.

Leffmann on Health Board.—Dr. Henry Leffmann, professor of chemistry in the Woman's Medical College of Pennsylvania, has been appointed a member of the board of health by Mayor Weaver to take the place of Dr. Charles B. Penrose, resigned.

Voodoo Doctor's Sentence Commuted.—George P. Hossey, the negro voodoo doctor who was sentenced to death a short time ago, was pardoned by the state board of pardons, which recommended that his sentence be changed from death to life imprisonment.

New Head for Blockley.—Dr. Henry Sykes, for many years superintendent of the Episcopal Hospital of Philadelphia, has been appointed medical superintendent of the Philadelphia Hospital to succeed Dr. Montgomery Biggs, resigned. Dr. Sykes has devoted practically his entire life to institutional medicine.

New Hospital Trustees.—Two new trustees have been elected to the board of the Medico-Chirurgical Hospital to fill vacancies caused by the retirement of Judge A. M. Beitler and William C. Mason. The new members are Justice William P. Potter of the Supreme Court, and Dr. William H. Green, formerly professor of chemistry at the Central High School and for several years demonstrator of chemistry in the University of Pennsylvania.

Hospital Examinations.—Examination of applicants for interneships in the Phoenixville Hospital will be held in the hospital April 21. The salary is $100 per year.——The Reading City Hospital will conduct its examination for internes at the Hotel Walton, Philadelphia, April 17. For information address the secretary of the board, Dr. Israel Cleaver, Reading.——Examination of applicants for the position of resident interne in the Williamsport City Hospital will be held in the Y. M. C. A. building, Philadelphia, April 12.

Money for Charity.—The executive committee of the nineteenth annual German-American Charity Ball has decided to divide the net receipts of the ball, $2,261.92, among the following institutions: The Children's Hospital of Philadelphia, the Pennsylvania Epileptic Hospital and the Kensington Hospital for Women.——As a result of the Jewish Charity Bazar, given for the benefit of the Jewish Industrial Home, the institution will receive between $3,000 and $4,000.——By the will of the late John F. Young the Episcopal Hospital will receive $700.

Health Report.—The total number of deaths for the week ended March 31 aggregated 625. This is an increase of 39 over the number reported last week, and an increase of 80 over the number reported in the corresponding week of last year. The principal causes of death were: Typhoid fever, 33; measles, 10; pertussis, 8; diphtheria, 10; consumption, 72; cancer, 18; apoplexy, 22; heart disease, 60; acute respiratory disease, 127; marasmus, 9; enteritis, 21; hepatic cirrhosis, 11; Bright's disease, 46; accidents, 11, and suicide, 2. There were 365 cases of contagious disease reported, with 45 deaths, as compared with 332 cases and 34 deaths in the preceding week. Typhoid fever is still prevalent and on the increase, as shown by 225 cases, with 33 deaths reported, as compared with 186 cases and 27 deaths reported in the previous week.

New Consumptive Hospital.—A new hospital, known as the Kensington Dispensary for the Treatment of Tuberculosis, was formally opened for inspection March 29. The hospital is located at Susquehanna and Trenton avenues, in the congested mill district of Kensington. The plan of the institution is said to be entirely new and the dispensary will be conducted on modern plans, but will have no special hospital facilities. Patients who are unable to visit the dispensary will be treated at their homes. Medicines and the diet of milk and eggs will be furnished free at the dispensary. Members of the staff and nurses will visit the patients at their homes and direct the

course of treatment. It is the purpose of the staff of the institution to deliver lectures in different parts of Kensington so as to give instructions as to the prevention as well as cure of this disease. The staff of the institution is composed of Dr. William G. Eisenhardt, chief physician; Drs. G. Ashton Bardsley and Charles Schaubel, assistants, and Dr. Aller G. Ellis, pathologist.

Vice, Its Prevention and Cure.—The symposium on vice and its prevention held by the Philadelphia County Medical Society, March 28, was in the interest of the American Society of Sanitary and Moral Prophylaxis, a branch of which was organized in Philadelphia, March 26. The principal address of the meeting was delivered by Dr. Prince A. Morrow of New York, president of the society, who gave an outline of the work of the society in the past year, and told of the great difficulties that beset the medical profession on every hand in inaugurating a crusade against the conservatism which fosters gross ignorance on the subject of vice and its physical effects. He believes that by medical instruction, assisted by other influences and agencies, the public can be enlightened to imminent dangers. A public opinion must be created to exterminate these evils by education, as the great white plague is slowly being conquered by intelligent methods. He hoped that a society such as they have in New York will be organized in every city of the country, and only then can we hope for success. He outlined the New York idea and said that work was instituted along four lines: 1, The education of the youth in hygiene and social truths through the home and school; 2, the education of the young men and women of the working classes; 3, the dissemination of hygienic knowledge in the Army and Navy, and, lastly, the education of the general public. He criticised the newspapers for the insertion of objectionable advertisements and at the same time their objection to printing articles of an instructive nature in their news columns.

VIRGINIA.

License Fee Abolished.—Dr. Robert S. Powell, Woodview, has succeeded in having a bill passed by the state legislature whereby the physicians will not have to pay $10 per year state license which has heretofore been imposed.

Medical Board Announced.—At a meeting of the executive committee of the Medical Society of Virginia, Dr. Hack U. Stephenson of Toano, James City County, was elected to succeed Dr. Junius E. Warriner, Brook Hill, as a member of the State Board of Medical Examiners. The governor has announced the following appointments for the State Board of Medical Examiners: Drs. Willard B. Robertson, Tappahannock, First district; Herbert M. Nash, Norfolk, Second; Hack U. Stephenson, Toano, Third; William W. Wilkinson, La Crosse, Fourth; Richard S. Martin, Stuart, Fifth; Samuel Lile, Lynchburg, Sixth; Robert C. Randolph, Boyce, Seventh; Robert M. Slaughter, Alexandria, Eighth; Elliott T. Brady, Abingdon, Ninth; Charles W. Rodgers, Staunton, Tenth; A. S. Priddy, Bristol, and R. Bruce James, Danville. Drs. Millson R. Allen, Norfolk, and Dr. E. Cone Williams, Hot Springs, have been appointed homeopathic members at large.

WISCONSIN.

Physicians Fined.—Dr. Thomas Welch, Rhinelander, has been fined $30 and costs for failure to report a case of diphtheria. He will appeal the case.——"Dr." William Bentz, Menominee, charged with practicing medicine without a license, convicted and fined $50 and costs, has decided not to appeal and has paid the fine and costs.

GENERAL.

American Urological Association.—This body met April 3, at New York, to organize a second section of the association, comprising New York, Pennsylvania, New Jersey, West Virginia, Maryland, Virginia and Delaware, and to discuss a scientific program.

License Fee in Hawaii.—The law imposing a $10 license fee on physicians in Hawaii has been declared invalid by the Supreme Court of the territory on the ground that it discriminates between the holders of licenses under the amending act and the holders of licenses issued prior thereto.

Canal Zone Medical Society.—Physicians on the Canal Zone recently met and organized a medical society. A committee consisting of Col. W. C. Gorgas, Capt. Ira A. Shimer and Dr. Bates was appointed to prepare a constitution and by-laws. Dr. A. B. Herrick was elected temporary chairman, and permanent officers will be elected later.

No Longer Members of the Proprietary Association.—Messrs. Henry K. Wampole & Co., Philadelphia, ask us to announce that the firm is no longer a member of the Proprietary Association of America.

Annual Report of the Marine-Hospital Service.—In this report are given the details of the work done by the United States Public Health and Marine-Hospital Service during 1905, including the inspection of immigrants, quarantine inspection, the work of the hygienic laboratory, and by the department in the recent yellow-fever epidemic in the South. The report includes some interesting original articles by members of the service, especially one by Dr. Wyman on "Yellow Fever, Its Origin and Prevention," and one by Assistant Surgeon Salmon on "Diagnosis of Insanity in Immigrants."

Health of the Philippines.—Chief Quarantine Officer Heiser reports that during the week ending Feb. 3, 1906, there was a sharp increase in the number of cases of cholera reported for the province of Cavite, and that on investigation this was found to be due to the fact that the natives of Naic refused to observe the simple precautions which were recommended. More attention has now been given to isolation and disinfection, and there has been a marked reduction in the number of cases since reported. The bureau of health has divided the infected provinces into small districts and has placed an insular medical or sanitary inspector in charge of each district, the principal object being to instruct the natives in the means of combating cholera. If the plans proves successful it is expected that there will be a marked decrease in the near future in the number of cholera cases.

Philadelphia Branch of American Pharmaceutical Association.—A meeting for organizing a branch of the American Pharmaceutical Association was held in the hall of the College of Physicians, Philadelphia, March 28, 1906. In addition to a fair representation of the leading pharmacists of Philadelphia, several prominent physicians of Philadelphia took part. Dr. Solomon Solis-Cohen welcomed the foundation of this local branch and expressed the belief that the provisions of the by-laws that were adopted would serve as a guarantee of the trustworthiness and integrity of the active members of this section. Dr. Henry Beates, jr., after congratulating the members on the important step they are taking to improve the science of pharmacy, assured his hearers that the time was not far distant when true worth and ability, in pharmacy as well as in medicine, would command more adequate compensation and reward. The officers for the current year are: Prof. Joseph P. Remington, president; William McIntyre and William L. Cliffe, vice-presidents; M. I. Wilbert, secretary-treasurer. The next meeting will be held at the same place, April 23, when it is proposed to discuss "The Immediate Object and Aims of the Philadelphia Branch of the American Pharmaceutical Association."

CANADA.

Personal.—Dr. George Elliott, Toronto, is recovering from a very exhausting illness which had lasted five weeks.

British Columbia Health Report for 1905.—British Columbia was absolutely free from smallpox during 1905. Of diphtheria there were 146 cases, with 9 deaths; scarlet fever, 158 cases, with 3 deaths. In the treatment of diphtheria a death rate of 6.1 per cent. is an excellent showing.

Annual Report of British Columbia Provincial Hospital.—Dr. C. E. Doherty, medical superintendent of the British Columbia Provincial Hospital for the Insane, reports that 123 patients were admitted into that institution during 1905. Of this number 90 were males and 33 females; 8 came from the Yukon. Seventy-six patients were discharged during the year, 43 of whom had recovered.

Canadian Association for the Prevention of Tuberculosis.—The annual meeting of the Canadian Association for the Prevention of Tuberculosis was held in Ottawa on March 28-29, 1906. The committee on organization and work urged that the association take immediate steps to secure the co-operation of the federal parliament, all provincial legislatures and municipalities and all charitable organizations of every particular. Parliament will also be asked to incorporate the association and thereby to give it more scope and wider authority; and a grant of $5,000 will be sought instead of one of $2,000. The Hon. W. C. Edwards was re-elected president; Dr. Thorburn, Toronto; Dr. Bayard, St. John, N. B., and Sir James Grant, M.D., Ottawa, vice-presidents. Sir James Grant, Ottawa, read a paper on the relation of school children to tuberculosis, and Dr. A. J. Richer, Montreal, delivered an illustrated lecture on the subject.

"Patent Medicines" in British Columbia.—A bill has been introduced into the legislature of British Columbia in response to 3,600 petitioners to regulate the sale of patent medicines in that province. It is the largest signed petition ever presented to the British Columbian legislature, and shows that the people of the Pacific province are getting alive to the evils of the unrestricted and promiscuous manufacture and sale of these dangerous nostrums. It provides that all "patent medicines" for internal use which contain chloral hydrate, ergot, morphin, opium, belladonna or their compounds, cocain, acetanilid, or sulphuric, nitric or kindred acids, must contain a label of poison on the package or bottle, with the name and percentage of the poison and the ingredients. No "patent medicines" under the provisions of this bill may contain more than 10 per cent. of alcohol except under permission of the provincial board of health. Penalties for violation are attached to the bill.

Toronto General Hospital.—Alterations have been in progress in the Toronto General Hospital, in the residence of the late superintendent, Dr. Charles O'Reilly, whereby wards are created for neurasthenic patients and some mild forms of mental disorders. The accommodation will for the present be limited to 14 beds, and will be under the direction of Dr. D. Campbell Meyers. Matters which have been rather acute in connection with the affairs of this hospital for the past two or three weeks now seem to have been finally settled. Some time ago the city of Toronto voted $200,000 to the institution, the result of this being an agitation on the part of many city physicians not on the hospital staff, that they should be permitted to follow their patients into the hospital when they paid the ordinary public ward charge of $3.50 a week. The trustees of the hospital would not accept tne grant, hence the difficulty. Arrangements were made for a compromise and a new rate was fixed for semi-public wards at $7 a week, which proved satisfactory to all. Now the Toronto General Hospital has the following classes of patients: charity, public ward (which are used for clinical purposes by the university medical college), semi-public (which may be so used on arrangement with their physicians), semi-private and private.

FOREIGN.

Tropical Gangrene in Guam.—It is reported that tropical gangrene has become so prevalent in the island of Guam that Lieutenant McNamee, U. S. N., acting governor of the island, has recommended the establishment of a hospital where these cases can be isolated.

Dietary of the British Mercantile Marine.—A bill has been introduced in the British House of Commons relating to the dietary of the men of the merchant navy. It is far more generous in quantity and provides more changes than did the former scale of dietary.

Sanatoria on the Canary and Madeira Islands.—The arrangements are about completed for the German sanatorium to be erected on the Madeira Islands. A Belgian company has been formed to erect a sanatorium also on the Canary Islands. Dr. Resquisse of Brussels is medical director of the latter company.

The Finsen Monument.—The committee in charge of the subscriptions for the Finsen memorial report that 85,000 kronen ($22,950) has been received. They have decided that $13,500 is to be devoted to enlarging the Finsen Light Institute and that the remaining $9,450 is sufficient for the memorial.

Isolation of Advanced Cases of Pulmonary Tuberculosis.—A hospital has been opened recently near Northampton, England, for the isolation of advanced cases of consumption occurring in that town. In addition, a resolution was passed by the town council of Northampton to retain, at certain sanatoria, a few beds for consumptives in the early stages of the disease.

In Russia.—The *St. Petersburg. Med. Wochft.* still continues to publish each week a list of physicians arrested for political activity. Some of them have been sent to Siberia. Dr. Lebedew, who was arrested not long ago, has died of typhus contracted in prison. Some of the physicians arrested appealed to the czar still to allow them the privilege of voting for the new representative assembly, asking that the ballots of the political prisoners may be taken and counted. Many physicians in the Baltic regions have been brought to financial distress by the prevailing disturbances and a subscription list has been opened by the *Wochenschrift* for the benefit of the suffering colleagues.

The Kroenlein Festschrift.—On the occasion of the close of his fiftieth semester as professor of surgery at the University of Zurich, Switzerland, R. U. Kroenlein was presented with a *Festschrift* containing a number of articles by his present and former pupils. The surgical amphitheater was decorated and crowded, and the festivities concluded with a banquet for the "festival family." His pioneer work in the surgery of the brain, the kidneys and abdomen was duly commented on in the addresses, and the honors heaped on him at home and abroad. He is now in his sixtieth year, and was elected to preside at the German Surgical Congress this year.

Prizes Offered by Belgian Academie de Medecine.—A prize of $200 will be given for the best work on "Simulation from the Medicolegal Standpoint, in Regard to Traumatisms and Neuroses, and Means to Detect It." Articles must be received before July 1, 1906, and must be sent in anonymously, written in French, German or Flemish. Another prize of the same amount is offered for the best work on "Normal Intestinal Poisons (toxins) of Man, Their Pathogenesis and Means of Defense Against Them." Must be received before Sept. 25, 1906. A third prize offered is for "Indications for Surgical Intervention in Stomach Affections;" prize 800 francs ($160); articles must be received before June 15, 1907, as also articles competing for the fourth prize, 600 francs ($120), for the best study on paraplegia in the horse. There is also an Alvarenga prize of $140 for the best work on any branch of medicine. Address all communications to the secretary, E. Masoin, Secrétaire de l'Académie de Médecine, Brussels, Belgium.

Homage to Baccelli.—The great Policlinico at Rome is to be formally inaugurated next week, although it has been in use for some time. The official dedication of the great hospital will be made the occasion for an ovation to the famous clinician and statesman of Italy, Guido Baccelli, to whom the Policlinico owes its inception and its design. He advocated the intravenous administration of drugs in urgent cases of malaria, etc., and has served the profession and his country as cabinet minister and senator, and in other ways. While minister of public instruction he inaugurated the extensive excavations in the Roman forum which have produced such interesting results in recent years. He was born Nov. 25, 1832, the son of a prominent physician, descended from a noble Roman family, many of whose exploits are engraved on marble tablets in the Capitol. He became professor of legal medicine at 24, and later professor of pathologic anatomy when this chair was founded, mainly by his efforts. He later became professor of clinical medicine, his indefatigable energy finding an outlet in nearly a hundred scientific publications, of which his studies on malaria, on the pathology of the heart and aorta, on typhoid, a new sign of ovarian tumors, and a new means of treating aneurism of the aorta, are the best known. It was in a large measure due to Baccelli that the hotbeds of malaria in Italy have been made healthier. A gold plaque is to be presented to him in the name of his friends at home and abroad, subscriptions having long been pouring in for the purpose. The committee in charge of the arrangements have invited all the governments of Europe to send representatives to the fête, and have personally invited the ministers of public instruction in each state, and the presidents of the universities, medical faculties and academies of medicine in the different countries, as well as his friends and admirers in and out of the profession in Italy.

International Medical Congress.—This week is the last which allows physicians from this country to reach Lisbon in time for the fifteenth great medical congress of nations. Large numbers have gone, so that the United States will be ably represented both in quantity and quality. The official program of the congress has just been received, with the names and addresses of all members who had registered to March 6, a total of 836 names. The program states that the United States government sends eleven delegates, among them the present president of the American Medical Association and four ex-presidents, the chief of the Marine-Hospital Service, Dr. Walter Wyman, also Nicholas Senn, R. Matas of New Orleans, R. Guiteras of New York, A. Vander Veer of Albany, and J. C. Wise of the Navy. Nearly two dozen medical faculties and medical organizations have appointed delegates. Ten addresses are to be presented at the general assemblies, including one by Senn on the "International Study of Carcinoma" (to be published in THE JOURNAL); by Aaser of Christiania on the "Relations Between Acute Infectious Diseases and Tuberculosis"; by R. Boyce of Liverpool on "Prophylaxis of Yellow Fever as Result of 1905 Epidemic in Central America and New Orleans"; by Neumann of Vienna on "Anatomic

Causes of Syphilitic Recurrences and Means to Combat Them," and by Reclus of Paris on "Local Anesthetics." Sanarelli and Gorgas have each announced a communication on the intermediate yellow fever host. Sir Dyce Duckworth will speak on "Chorea Considered as Cerebral Rheumatism"; F. B. Turck on "Ulcer of the Stomach" (to be published in THE JOURNAL); Lombroso on the "Importance of Study of the Sleep in Different Diseases"; G. W. McCaskey of Fort Wayne on "Disease of the Digestive Organs in Pathogenesis of Arterial Hypertension"; A. Lorand of Carlsbad on the treatment of obesity and of senility, and F. Ostwald of Paris will describe his latest experiences with injections of cocainized alcohol as a means of curing facial neuralgia, a method of treatment attracting much attention at present, and described in these columns recently. The subject of tropical diseases will be treated more extensively than ever before at an international congress, and will be presented by men who are the leading authorities. Caravassili of Athens has announced a communication on "Hot Intestinal Injections (104-107 F.) as Important Topical Measure in Treatment of Infantile Enterocolitis." D. R. Brower of Chicago will speak on "Treatment of Acute Insanity in General Hospitals." Official addresses on experimental syphilis are to be presented by Metchnikoff, Lassar, Neisser, Finger and Landsteiner, all of continental Europe. The "Pre-cancer Stage" will be described by A. Ravogli of Cincinnati; J. T. McDonald of Honolulu will speak on the "Recognition of Obscure Cases of Leprosy," and A. Carrel of Chicago will describe his method of anastomosis of blood vessels. Chicago will also be represented in the section on ophthalmology in which H. Gradle will read an article on "Punctate Forms of Retinitis." A number of imposing fêtes are announced, including a royal garden party and a reception by the president of the congress, a ball given by the municipality, a reception by the Comte de Burnay, another by the congress, by the Geographical Society, and others. The list of addresses and communications fills about fifteen of the large pages of the official program, in small type, and it is truly international to a surprising extent.

LONDON LETTER.

The Medical Society of London.

The one hundred and thirty-third anniversary dinner of this famous society was held recently. Sir Lauder Brunton, F.R.S., presided. About 190 fellows of the society and guests were present. Dr. Macalister, president of the General Medical Council, in proposing the society referred to the projected amalgamation of the various medical societies, and said that it was to the advantage of the profession at large that the movement should succeed. If the government required any advice on scientific matters the Royal Society was appealed to, but for medical matters there was no such recognized body. The proposed Royal society of Academy of Medicine would supply this want. Sir Lauder Brunton in replying referred to the history of the society and to its vigor during a life of 133 years. He laid stress on its financial stability and on the value of its library. He pointed out that the society was an offshoot of the Royal Society.

Lunacy in Ireland.

The report on lunacy in Ireland during the year 1904 has just been issued. On Jan. 1, 1905, the insane in establishments of all kinds numbered 22,996—an increase of 202 on the previous year—which is the smallest increase since 1893. The proportion of insane under care to 100,000 of the population was 522. In recent years the ratio of the insane to the population has steadily increased. In 1851 it was 1 to 657; in 1891, 1 to 222; in 1901, 1 to 178.

Correspondence

Pure-Food Analyses in South Dakota.

PHILADELPHIA, March 28, 1906.

To the Editor:—I desire to direct the attention of the medical profession generally to some valuable results recently published by Prof. James H. Shepard, chemist to the South Dakota food department. These are careful analyses of high class commercial whiskies, published in a bulletin issued by the department.

There are few topics in the analysis of foods and beverages on which it is more difficult to get calm and scientific judgment than on whisky. The widespread use of this substance by all classes and the evident baleful effects of such use in many instances, has led to much casuistry. The humble citizen who gets drunk gives himself, as a rule, no concern as to moral responsibility. He drinks to secure the physiologic condition which whisky in full doses produces. The more cultured citizen frequently tries to find some excuse for his habit, or failing in that, for his condition, and in the latter effort falls back on real or supposititious adulterations of the beverage. This cry is taken up by many and we frequently see it stated that if the community could only be furnished with "pure liquors," the evils of inebriety would disappear. Among the widespread errors is the view that the principal injurious effect of whisky is due to "fusel oil," and that ageing removes this. It has long been evident that no experimental basis exists for this view, but the statement has been carried from one text-book to another, and repeated in scientific and popular essays until it has come to be almost an axiom. The late Mr. A. H. Allen, an eminent English analyst, showed some years ago that the fusel-oil theory is of little value, but the special merit of the paper by Professor Shepard, is that by analyses of the best brands of American whiskies, according to most approved methods, he has shown that the fusel-oil content is not appreciably reduced in ageing, and that its proportion bears no relation to the age of the sample. So far has the "fusel-oil fetish" been allowed to operate, that American authorities have proposed to fix a limit (0.25 per cent.) for commercial whiskies. This limit favors certain distillers who use antiquated methods of distillation. By improved stills, the amount can be reduced below 0.1 per cent. The percentage of fusel oil found by Shepard ranged from 0.0849 to 0.1936, and the whiskies represented by these extremes are, respectively, 8 years and 7½ years old.

Of late years, many who have abandoned the fusel-oil theory, have adopted the view that furfural and other aldehydic bodies are responsible for the injurious action of whiskies, and that these are removed by ageing, but Shepard's results upset these views also. The furfural content was very minute in all the samples, and in several cases the highest aldehyde content was found in the oldest samples.

I think these results are of sufficient importance to bring to the general notice of the profession, inasmuch as the original form of publication—a state bulletin—has a comparatively limited circulation. A large part of the work in establishing truth is the preliminary destruction of error, and before correct notions of the sociologic and physiologic actions of alcoholic beverages can be attained, the elimination of these fetishes must be accomplished.

HENRY LEFFMANN.

The Nostrum and Other Evils.

CANON CITY, COLO., March 28, 1906.

To the Editor:—In all that has been said about the nostrum and proprietary-medicine question, it seems to me that the real remedy has not been emphasized as it should be. If every physician would get right and keep right, these evils would soon cease to exist; and no one need to go to extremes in the matter, either. There are comparatively few "ethicals," and it is easy to select them. Those made by reputable manufacturing houses and whose ingredients are well known, and for which no extravagant claims are made, should be the only ones prescribed. We all condemn "counter prescribing" and yet keep on prescribing proprietaries and help the druggist to do a wholesale business in that line. Why not stop it, and stop it right now?

Another thing: How long are we going to subscribe for, contribute to and read medical journals that accept objectionable advertisements? A journal which I have taken for years had, in a recent number, sixteen advertisements from members of an association which is the bitterest enemy the profession has; besides quite a number of others equally objectionable. The editors of this journal are leaders in the pro-

fession in America, able, and of wide reputation. Are not these men culpable in that they do not demand the exclusion of these "ads." on penalty of their resignation? I have stopped reading this journal and all others of the kind. If every other physician would do the same how easily could the medical press be reformed. But physicians will not stand together in these matters. A striking illustration of this fact has recently come under my observation. An old-line life insurance company, for which I have been an examiner for a long term of years, lately cut the fee from $5 to $3 for examinations for policies under $3,000. I promptly returned the schedule unsigned, as I have all such propositions for the past ten years, giving my reasons for declining to accept the cut. The medical director of the company, in a long letter arguing the case, said among other things: "Thus far we have had only 900 refusals as against over 12,000 acceptances." Were the figures reversed, what a grand reform would have been effected. But no; one man stands for his rights and the honor and dignity of the profession while thirteen "bow the knee" and let the company walk over them as it pleases. Our county society recently adopted a resolution, since concurred in by every physician in the county, pledging its members to make no examinations for life insurance companies for less than $5. A resolution was also adopted endorsing the work of The Journal and also *Collier's Weekly*, the *Ladies' Home Journal* and other magazines, in their fight against the "Great American Fraud," the "patent medicine" and nostrum evil. Every medical society in the United States ought to speak out and speak plainly, if it has not already done so, and every physician should get right at once on these questions and thus once and forever put an end to these evils.

T. B. Moore, M.D.

Association News

THE BOSTON SESSION.

Announcement of Headquarters and List of Hotels, with Prices.

While Boston is liberally supplied with hotels of the first class, many of which are in the immediate neighborhood of the meeting places selected by the Committee of Arrangements for the annual session of the American Medical Association, June 5-8, 1906, the Committee on Hotels deems it wise to bring to the notice of those expecting to attend, the advisability of securing accommodations well in advance, since the time chosen for the session is not far from the commencement days of Harvard, Tufts, Boston University and the Massachusetts Institute of Technology, and during the same week it is expected that Eddyites to the number of some thousands will visit Boston to open a new "temple." The committee urges members of the Association, therefore, not to postpone too long the securing of rooms, and it engages to act in the matter for all who will make their desires known; but the final engagement must be made in all cases by the applicant directly with the hotel managers.

In addition to the hotels included in the list below are many of perfect respectability, but not of such excellence as to entitle them to be rated as of the first class.

LIST OF HOTELS WITH PRICES.

The following are the hotels included in the first class, with terms, and the number for whom it is estimated that there will be accommodations at the time of the session:

Adams House, Washington Street. European plan. Single rooms, without bath, $1.50 to $4 per day; with bath, $2.50 to $4. All rooms cost $1 additional when occupied by two persons. Accommodations, 200.

American House, Hanover Street. European plan, $1 to $4 per day. Accommodations, 200.

Bellevue, Beacon Street. European plan. Single rooms, $1.50 to $2.50 per day; with private bath, $3 to $5. Double rooms, $2 to $3 per day; with private bath, $4 to $6. Accommodations, 150.

Brunswick, Boylston Street. American plan. Rooms, without bath, $5 per day; with bath, $6. Accommodations, 300.
The Brunswick has been chosen headquarters for the Section on Surgery and Anatomy.

Buckminster, Commonwealth Avenue and Beacon Street. American and European plans. American: $4 per day, European, $2. Accommodations, 40.

Carlton Chambers, 1138 Boylston Street. European plan. Single rooms, without bath, $1.50 per day; with bath, $2. Double rooms, without bath, $3, per day; with bath, $4. Accommodations, 50.

Cecil, Washington Street. European plan. Single rooms, $1 and upward per day; for two persons, $2 and upward; with bath, $1.50 to $4. Double rooms, with bath, $2.50 to $5. Accommodations, 75.

Clarendon, Tremont Street. European plan. Single rooms, without bath, $1 per day; double rooms, without bath, $2; with bath, $2.50. Accommodations, 50.

Commonwealth Chambers, Bowdoin Street. European plan. Rooms, with hot and cold water and free public bath, $1 and $1.50 a day for one person; $2 and $2.50 for two persons. Rooms with private bath, $1.50 to $2 for one person, $2 to $2.50 for two persons. Accommodations, 175.

Copley Square Hotel, Huntington Avenue and Exeter Street. European plan. Rooms, $1.50, without bath, to $3 and $4 with bath, according to number of persons. Accommodations, 200.
The Copley Square has been selected as headquarters for the Sections on Obstetrics and Diseases of Women and on Pathology and Physiology.

Crawford House, Scollay Square. European plan. Single rooms, with two persons in a room, $2 to $3 per day. Accommodations, 75.

Essex, Atlantic Avenue. European plan. Single rooms, $1.50 and upward; with bath, $2 and upward.

Hemenway Chambers, Westland Avenue. European plan. Single rooms, with bath, $1.50 to $3 per day. Double rooms, with bath, $2.50 and $4.50. Three rooms, with bath, $4 and upward. Accommodations, 75.

Langham, Worcester and Washington streets. European and American plans. European plan, $1 and upward per day. American plan, single rooms, $2 per day; single rooms, with two persons, $3. Accommodations, 100.

Lenox, Exeter and Boylston streets. European plan. Single room, without bath, $2.50 to $3 per day; with bath, $4 and $5. Accommodations, 50.
The Lenox has been chosen as headquarters for the Section on Ophthalmology.

Lexington, 13 Boylston Street. European plan. Single rooms, $1.50 to $2 per day; for two persons $2.50 to $3. Accommodations, 75.

Nottingham, Copley Square. European plan. Single room, $1 and $1.50 per day; with bath, $2; two persons, without bath, $2 and $2.50; with bath, $3. Accommodations, 150.
The Nottingham has been selected as headquarters for the Sections on Diseases of Children and on Cutaneous Medicine and Surgery.

Oxford, Huntington Avenue. American and European plans. Singue rooms, $1, $1.50 and $2 per day. Accommodations, 100.
The Oxford has been chosen as headquarters for the Section on Pharmacology.

Parker House, School Street. European plan. Single rooms, without bath, $1.50 to $3 per day; for two persons, $2.50 to $4.50. Single rooms, with bath, $2.50 to $4; for two persons, $4 to $6. Accommodations, 75.

Quincy House, Brattle Street. European plan. Rooms, $1 per day and upward. Accommodations, 300.

Revere House, Bowdoin Square. European plan. Single rooms, $1 per day; for two persons, $1.50; with bath, $2; for two persons, $3, with parlor and bath, for two persons, $5. Accommodations, 200.

Somerset, Commonwealth Avenue. European plan. Single rooms, $2.50 per day; with bath, $3. Double rooms, $3.50; with bath, $4. Accommodations, 100.
The Somerset has been chosen as headquarters for the Section on Practice of Medicine.

Thorndike, Boylston Street. European plan. Single rooms, with detached bath, $1.50 per day and upward (a few single rooms at $1.00); double rooms, with detached bath, $2 and upward; single, with connecting bath, $2 and upward; double, with connecting bath, $3 and upward; suite of two chambers and bath (or parlor, chamber and bath), $5 and upward. Accommodations, 125.
The Thorndike has been chosen as the headquarters for the Sections on Hygiene and Sanitary Science and on Laryngology and Otology.

Touraine, Boylston Street. European plan. Single room, without bath, one person, $3 per day; two persons, $4.50; double, with bath, one person, $4 to $6; two persons, $5.50 to $8. Accommodations, 40.
The Touraine has been chosen as the headquarters for the Section on Nervous and Mental Diseases.

United States Hotel, Beach Street. American plan; two in a room, $2.50 per day and upward for each person. European plan, two in a room, $1.00 and upward, for each. Accommodations, 150.

Vendome, Commonwealth Avenue. American plan. Single rooms, without bath, $5 per day; with bath, $6. Accommodations, 200.
The Vendome has been chosen as the headquarters for the General Officers.

Victoria, Dartmouth Street, corner Newbury. European plan. Single rooms, with use of bath, $2 per day and upward; with private bath, $3.50; double, with use of bath, $3 and upward; with private bath, $4.50 and upward. Accommodations, 50.

Westminster, Copley Square. European plan. Single rooms, $2 per day; with two persons, $3 and upward; three-room apartments, $9 to $12. Accommodations, 50.
The Westminster has been chosen as the headquarters for the Section on Stomatology.

Young's Hotel, Court Square. European plan. Single rooms, without bath, $1.50 to $2 per day; for two persons, $2.50 to $4; with bath, $2.50 to $4.50; double room with bath, $4 to $7.

The following hotels are within a few minutes' walk of the general meeting places; the others are not more than fifteen minutes' distance by trolley cars:

Brunswick.	Nottingham.	Vendome.
Carlton Chambers.	Oxford.	Victoria.
Copley Square.	Somerset.	Westminster.
Hemenway Chambers.	Thorndike.	
Lenox.	Touraine.	

The following hotels have been selected as headquarters for the general officers and for the sections:

General Officers	Vendome.
Practice of Medicine	Somerset.
Obstetrics and Diseases of Women	Copley Square.
Surgery and Anatomy	Brunswick.
Hygiene and Sanitary Science	Thorndike.
Ophthalmology	Lenox.
Diseases of Children	Nottingham.
Stomatology	Westminster.
Nervous and Mental Diseases	Touraine.
Cutaneous Medicine and Surgery	Nottingham.
Laryngology and Otology	Thorndike.
Pharmacology and Therapeutics	Oxford.
Pathology and Physiology	Copley Square.

Attention is called to the fact that, at the time of the session many seashore resorts will be open, and it is possible that these may offer more attraction to those who have lived inland than the hotels within the city proper. Those which the committee would recommend are within an hour of Boston, either by rail or steamboat. These and other available hotels will be announced later.

BOARDING AND LODGING HOUSES.

The Committee on Hotels and Transportation has secured a list of 521 private houses where board and lodging can be secured. Many of these houses are in the neighborhood of the general meeting places. These, and many more still to be secured, will soon have been critically inspected and rated. The committee will gladly act for those who desire its assistance in securing rooms and board in these houses. A list of them with rates will be furnished in a later number of THE JOURNAL.

RESTAURANTS.

By reason of the fact that many thousands of persons, residing elsewhere, conduct their business in Boston, the city is unusually well supplied with restaurants, which are equal to all possible demands on them. These are situated in all parts of the city. Naturally the greater number of them are located in the business section, but there are many in the neighborhood of the general meeting places.

CHARLES HARRINGTON, Chairman,
DAVID D. SCANNELL, Secretary,
Committee on Hotels and Transportation.

Marriages

ERLE E. BENEDICT, M.D., to Miss Matilda Simonson, both of Racine, Minn., March 21.

MICHAEL V. BALL, M.D., Warren, Pa., to Miss Grace Paterson of Buffalo, N. Y., March 14.

HOWELL BEIRNE BURWELL, M.D., Davis, Ala., to Miss Frances Laura McArthur of Rome, Ga., April 4.

ROBERT N. WOOD, M.D., Chaplin, Ky., to Mrs. Ida S. Gardner of Louisville, at Jeffersonville, Ind., March 24.

WALTER A. LOOPS, M.D., Impur, Naga Hills, Assam, India, formerly of Milwaukee, Wis., to Miss E. V. Preston, formerly of New Haven, Conn., at Madras, India, February 27.

Deaths

John Clark Le Grande, M.D. Atlanta (Ga.) Medical College, 1880; for eighteen years editor of the *Alabama Medical Journal;* one of the organizers, treasurer and business manager of Birmingham Medical College; a member of the Hillman Hospital staff; president of the Medical Association of the State of Alabama in 1900; first vice-president of the American Medical Association in 1895; president of the Jefferson County Medical Association; president of the Tri-State Medical Society of Tennessee, Georgia and Alabama, 1901-1902; a member of the Southern Gynecological and Surgical Association; one of the best known practitioners of Alabama, and a man of national prominence, died at his home in Birmingham, March 21, after a long illness, aged 51.

John H. Kulp, M.D. State University of Iowa, Medical Department, Iowa City, 1872; of Davenport, Iowa; alienist and manager of the insane department, Mercy Hospital, Davenport; member of the Iowa State Medical Society, Iowa and Illinois District Medical Society; president of the Scott County (Iowa) Medical Society; member of the American Medico-Psychological Association, and from 1881 to 1901 a member of the board of control of the State Hospital for the Insane, Mount Pleasant, died at a sanitarium in Pueblo, Colo., March 22, from septicemia, after an illness of ten days, aged 56.

Harry Hoyle Butts, M.D. University of the City of New York, 1885; a member of the American Medical Association, New York State Medical Association, New York County Medical Association, Medical Society of the County of New York and New York Academy of Medicine; surgeon to the throat and nose department of Bellevue and Presbyterian hospitals and to the Manhattan Eye, Ear and Throat Hospital; lieutenant colonel and brigade surgeon N. G. N. Y., died in his apartments in New York City, March 24, from an incised wound of the throat, the cause of which is unknown, aged 41.

W. M. S. Beede, M.D. University of California, Medical Department, San Francisco, 1884; for several terms coroner of San Joaquin County; for a time consular surgeon in Shanghai, and in practice at Manila, P. I.; a member of the American Medical Association, Medical Society of the State of California, San Joaquin County and San Francisco County medical societies, Hongkong and China Branch of the British Medical Association; chairman of the Stockton Chamber of Commerce, died at his home in that city from cerebral hemorrhage, March 21, after an illness of four days, aged 40.

Hugh T. Nelson, M.D. University of Virginia, Medical Department, Charlottesville, 1875; a Confederate veteran; formerly a member and president of the State Board of Medical Examiners; instructor in surgery in the University of Virginia; president of the Medical Society of Virginia; member of the International Association of Railway Surgeons; member of the Southern Surgical and Gynecological Association, died at his home in Charlottesville, March 26, from pneumonia, after an illness of one week, aged 60.

Benjamin Walter Carpenter, M.D. University of Vermont, Medical Department, Burlington, 1857; assistant surgeon of the Second Vermont Volunteer Infantry; surgeon of the Ninth Vermont Volunteer Infantry; chief medical officer at Camp Douglas, Chicago, and medical director of the Second Division, Eighteenth Army Corps during the Civil War, and thereafter a practitioner of Burlington, Vt., died at his home in that city, March 20, after a short illness, aged 69.

James C. J. King, M.D. Tulane University of Louisiana, Medical Department, New Orleans, 1871 a Confederate veteran; member of the State Medical Association of Texas, and once its vice-president; a member of the Central Texas Medical Association, and a member and once president of the Waco Medical Association, died at his home in Waco, Texas, March 21, from cerebral hemorrhage, after a short illness, aged 64.

Alexander H. Thompson, M.D. New York University, New York City, 1861; licentiate of the Upper Canada Medical Board, 1865; member of the College of Physicians and Surgeons of Ontario, 1866; for a number of years a member of the Ontario Board of Health, died suddenly from heart disease at his home in Strathroy, Ont., March 31, aged 69.

Jefferson D. Christman, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1876; formerly health officer and coroner's physician; a member of the Philadelphia Medical Club, Medical Society of the State of Pennsylvania and Lehigh Valley County Medical Society, died at his home in Allentown, Pa., March 30, aged 50.

Joseph B. Kingsbury, M.D. Dartmouth Medical School, Hanover, N. H., 1871; one of the oldest residents of Holbrook, Mass; for many years a member of the local school board, trustee of the public library, and member of the board of health, died at his home in Holbrook, March 24, after an illness of several weeks, aged 71.

William John Douglas, M.D. Trinity Medical College, Toronto, 1876; member of the College of Physicians of Ontario, 1876; member of the Ontario Medical Council since 1897, of Coburg, Ont., fell dead from his buggy while driving into the country to make a professional call, March 29.

Benjamin S. Roseberry, M.D. University of Maryland School of Medicine, Baltimore, 1874; professor of materia medica in Baltimore University from 1883 to 1888; a member of the American Medical Association, died at his home in Gardiner, N. M., where he went for his health eighteen years ago, March, 28, aged 52.

James Simpson Dunn, M.D. Western Pennsylvania Medical College, Pittsburg, 1900; a member of the American Medical Association, Allegheny County Medical Society and Austin Flint Medical Society, died at his home in Pittsburg, March 22, from pneumonia, after an illness of three weeks, aged 30.

Reuben B. Spackman, M.D. Jefferson Medical College, Philadelphia, 1870; a member of the American Medical Association; a pioneer practitioner of Clearfield County, Pa., and one of the most prominent physicians of that section, died at his home in DuBois, March 20, after a lingering illness, aged 65.

Allen H. Oliver, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1882; assistant superintendent of Presbyterian Hospital, New York City, for eight years, was found dead in his bed, in that institution, from cerebral hemorrhage, March 27, aged 58.

John Robert Bristow, M.D. Tulane University, Medical Department, New Orleans, 1871, of Farmington, Texas, a member of the Grayson County and North Texas medical associations, died at the home of his son, near Comanche, I. T., March 25, from chronic nephritis, aged 75.

C. B. McGuire, M.D. University of Nashville, Medical Department, 1856, surgeon of the First Tennessee Infantry, C. S. A., during the Civil War, died at his home in Fayetteville, Tenn., March 25, after an illness of several years, aged 75.

Thomas P. Hereford, M.D. Jefferson Medical College, Philadelphia, 1860, an officer in the Confederate service during the Civil War, died at his home in Elmwood, Mo., March 4, from senile debility, after an illness of several months, aged 69.

William H. Woodson, M.D. University Medical College of Kansas City, Mo., 1896, some-time city physician of Joplin, Mo., died at the home of his father in Liberty, Mo., from tuberculosis, after a long illness, March 22, aged 32.

Edward M. Southwick, M.D. Baltimore Medical College, 1898, formerly resident physician of the Maryland General Hospital, died at his home in West Philadelphia, March 25, from typhoid fever, after a short illness, aged 38.

Harry S. Ellwood, M.D. University of Buffalo, Medical Department, 1868, a member of the Erie County Medical Society, died at his home in Buffalo, N. Y., March 22, after an illness of six months, aged 67.

Walter E. Black, M.D. Memphis Hospital Medical College, 1901, of Guymon, Okla., died at the home of his father in Altus, Okla., March 24, from cerebral hemorrhage, after an illness of three weeks.

James C. Klingeman, M.D. Bellevue Hospital Medical College, New York City, 1872, died at his home in Papillion, Neb., March 20, from cerebral hemorrhage, after an illness of three days, aged 55.

Paul N. Zilliken, M.D. Homeopathic Medical College of Missouri, St. Louis, 1892, of Hoffman, Ill., died at the home of his mother in Evansville, Ill., March 18, from nephritis, after a lingering illness.

James H. Myers, M.D. University of Nashville, Medical Department, 1885, representative from Lawrence County in the legislature of Arkansas in 1903, died recently at his home in Black Rock.

George Sullivan Woodman, M.D. Harvard University Medical School, Boston, 1849, a member of the Massachusetts Medical Society, died at his home in Cambridge, Mass., March 22, aged 81.

George F. Dearborn, M.D. Albany (N. Y.) Medical College, 1857, a surgeon in the Civil War, died at his home in Rockaway, N. J., from pneumonia, after a short illness, March 26, aged 71.

James M. Kelleam, M.D. University of Louisville, Medical Department, 1882, of Fort Smith, Ark., died in San Antonio, Texas, March 23, from nephritis, after a long illness, aged 47.

Sarah J. McCarn Craig, M.D. Woman's Medical College, Philadelphia, 1863, died at her home in Rochester, N. Y., March 22, after an illness of several months, aged 74.

James W. Exline, M.D. Cleveland Medical College, 1870, a member of the American Medical Association, died at his home in Los Angeles, Cal., March 15, from heart disease.

Ralph W. Ferry, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1898, died suddenly at his home in Roseville, N. Y., March 22, aged 32.

Henry C. Ramsey, M.D. Georgia College of Eclectic Medicine and Surgery, Atlanta, 1883, died at his home in Thomasville, Ga., recently, and was buried March 23, aged 58.

Hall Wilson, M.D. Tulane University of Louisiana, Medical Department, New Orleans, 1888, is reported to have been murdered at his home in Augusta, Texas, March 24.

Fred S. Hunt, M.D. Rush Medical College, Chicago, 1881, of Stuart, Neb., was instantly killed while attempting to board a freight train at O'Neill, Neb., March 23.

James D. Easton, M.D. Homeopathic Hospital College, Cleveland, 1876, died suddenly at his home in Elmira, N. Y., from cerebral hemorrhage, March 26, aged 53.

William D. Williams, M.D. Homeopathic Hospital College, Cleveland, 1865, died at his home in London, Ohio, March 22, from cerebral hemorrhage, aged 70.

Daniel M. Redlon, M.D. (County License, Ind.), 1897, a veteran of the Civil War, died at his home near Pierceville, Ind., March 17, from paralysis, aged 76.

William J. Crawford, M.D. Eclectic Medical Institute, Cincinnati, 1869, died at his home in Jackson, Mich., March 24, from cerebral hemorrhage, aged 78.

James M. Harman, M.D. Rush Medical College, Chicago, 1876, of Fairport, Mo., died at Excelsior Springs, Mo., March 12, from nephritis, aged 51.

John B. Hunt, M.D. Homeopathic Hospital College, Cleveland, 1863, died at his home in Westerville, Ohio, March 20, from pneumonia, aged 76.

Edward C. Johnson, M.D. Barnes Medical College, St. Louis, 1897, died suddenly, from cerebral hemorrhage, at his home in Rodessa, La., March 16.

Robert S. Finley, M.D. Eclectic Medical Institute, Cincinnati, 1850, died at his home in Xenia, Ohio, from senile debility, March 22, aged 79.

Joseph W. Speight, M.D. Medical College of Alabama, Mobile, 1883, died at his home near Columbus, La., March 17, after a brief illness, aged 53.

Simon A. Hageman, M.D. Pulte Medical College, Cincinnati, 1881, died at his home in Walnut Hill, Cincinnati, March 22, after a long illness.

Seth Cook Comstock, M.D. College of Physicians and Surgeons in the City of New York, 1894, died in New York City, March 27, aged 34.

John W. Hessey, M.D. College of Physicians and Surgeons, Baltimore, 1878, died at his home in Hanesville, Md., March 29, aged 53.

Henry Fisher Camblos, M.D. Jefferson Medical College, Philadelphia, 1881, died at his home in that city, March 26, aged 47.

Frederick W. Byfield, M.D. (Years of Practice, Illinois), 1879, died at his home in Sorento, Ill., March 20, aged 76.

Lester M. Burroughs, M.D. (Years of Practice, Illinois), 1877, died at his home in Batavia, Ill., March 23, aged 80.

Queries and Minor Notes

CAUSES OF IRREGULAR HEART ACTION.

BINGHAMTON, N. Y., March 5, 1906.

To the Editor:—Can you cite any authority who can explain the cause of irregular action of the heart? In one of my male patients the intermissions of the pulse are so irregular that they occur sometimes at every fifth beat, then perhaps at every seventh, and again at longer intervals from eleventh to twentieth. The patient had not been aware of any abnormal action of the heart until five or six years ago, when after assisting in carrying a heavy trunk upstairs it was accidentally discovered that the pulse was intermittent. It might have been, and probably was so before, though the patient had not been aware of it. For perhaps two years this irregularity was present whenever the pulse was counted; then for a year or more the beat was perfectly regular, but then again became irregular, and has continued so up to the present time. The general health has all this time been uniformly good, and the patient has not suffered any inconvenience from this irregularity of the heart's action. I have nowhere seen any satisfactory explanation of this abnormal condition. Can you solve the problem for me? M.

ANSWER.—Simple arrythmia without determinable organic change about the heart and arteries may be due to hysteria, to the overuse of tobacco or to reflex irritation from remote organs, especially the stomach and the intestine. If the element of hysteria can be

eliminated, particular care should be given to the stomach or bowel. Above all, constipation should be counteracted by the use of free evacuations, and careful search should be made for the possible presence of intestinal parasites. Dyspeptic symptoms, particularly flatulency after eating, should be treated according to the ordinary principles that are adopted for the cure of these conditions. Symptomatically, aconite, given in drop doses several times a day, is the best remedy, especially if the arrhythmia is complicated with palpitation. If the symptom is not subjectively perceptible, if it is not due to tobacco nor to organic disease of the heart, if the gastrointestinal tract is performing its function in a normal way and contains no parasites, then the symptom is negligible. The prognosis, so far as restitution to normal conditions is concerned, is doubtful and uncertain. Arrhythmia *per se* is not infrequently discovered by chance, and, when it is not due to any of the above causes, the life expectancy of the individual is generally in no way curtailed by its presence.

ARSENIC IN DIABETES.

EDGERTON, WIS., March 22, 1906.

To the Editor:—In THE JOURNAL, Jan. 13, 1906, page 141, there is a paragraph entitled "Arsenic in Diabetes," which refers to the use of arsenicated waters in the treatment of this disease. Can you give me any further information regarding the waters used, their administration or the literature on the subject? W. W.

ANSWER.—The arsenicated mineral waters used by Verdalle are those of La Bourboule, a watering place in France, near Bordeaux and Cannes. The waters contain 28 mg. of sodium arsenate to the quart, and are equivalent to about 21 drops of Fowler's solution and 3 grains of sodium chlorid with alkaline bicarbonates. These are said to be among the richest hot (140 F.) arsenical waters known. Verdalle found that diabetics who had not been benefited by Vichy and other waters were benefited by moderate doses of the Bourboule waters. He classifies diabetes according as the symptoms indicate insufficiency of the liver, the ordinarily mild cases, or hyperfunctioning of the liver, with very pronounced glycosuria and azoturia, generally accompanied by hypertrophy of the liver. The arsenicated waters are recommended in the latter class, while the alkaline are better for the former. In his article Verdalle gives the details of 64 cases to illustrate the benefit from the Bourboule waters. He reports the improvement to be lasting, and even apparently permanent in many cases. He proceeds very gradually with the waters, never giving large doses. His latest communication is in Archivos Gen. de Méd. for March 20, 1906.

DRUGS INTERFERING WITH THE DIAZO REACTION.

WHITING, IND., March 24, 1906.

To the Editor:—1. What drug interferes with Ehrlich's diazo reaction? 2. Is the reaction ever obtained in syphilis, and if so at what stage? E. L. DEWEY.

ANSWER.—1. **Burghart states that tannic acid,** gallic acid and some iodin preparations,when administered internally, inhibit the diazo reaction of Ehrlich. The tincture of iodin, but not its salts, has this inhibiting power (Arnelil). Simon found that naphthalin, when given by the mouth, gives a color "which corresponds exactly to that of the diazo reaction." The statement has been made also that the tincture of opium, cascara sagrada, and hydrastis canadensis give a reaction similar to that of Ehrlich (Burghart), but this is questioned by Arnelil, except in the case of the tincture of opium, which may yield a similar color. Bilirubin and urobilin interfere with the test by altering the color picture, but if these substances are removed by sugar of lead or by treating with animal charcoal, the characteristic color may be obtained in suitable urines. What has been said relates to the diazo reaction of Ehrlich, as caused by some unknown substance in certain pathologic urines (e. g., typhoid, measles, acute miliary tuberculosis), and not to numerous other diazo color-reactions which may be obtained by known chemical substances.

2. Syphilis is not one of the diseases cited as giving the reaction. Penzolt makes a rather vague reference to its occurrence in lues, but other observers have not recorded it. On theoretical grounds, one should not be surprised at its occurrence in a case of febrile secondary syphilis, or in tertiary syphilis with extensive secondary infection. Arnelil obtained the reaction in one case of amyloid disease. (See Simon, "Clinical Diagnosis," Lea Brothers, 1904, Arnelil, Amer. Jour. Med. Sc., 1900, vol. 119, p. 296).

ELECTRIC LAMPS FOR THERAPEUTIC PURPOSES.

SAN FRANCISCO, March 22, 1906.

To the Editor:—The claims of a certain electric lamp, whereby the actinic rays are concentrated and focused on the part to be treated, are being vigorously pushed in this vicinity by a medical man of much elcquence. A number of subscribers of THE JOURNAL have been approached, and have been solicited to purchase the apparatus, but they are totally uninformed as to its practical value. I can find only one article referring to this method of treatment, that by Dr. A. E. Sterne of Indianapolis, in THE JOURNAL, Feb. 20, 1904. In common with other subscribers, I should like to have your opinion of the value of this method of treatment in certain diseases. ROBERT A. MCLEAN.

ANSWER.—Practically all the so-called therapeutic lamps are incandescent lamps. The incandescent electric light contains almost no actinic rays, and the only effect that is had from it is from the application of heat. It is hard to see what basis there can be for the extravagant claims made for its therapeutic value.

LIQUOR AMMONII ACETATIS.

WAVERLY, MO., March 24, 1906.

To the Editor:—I have found that in country drug stores it is very hard to get good liquor ammonii acetatis. I was told by a hospital pharmacist that it took some ability and pure chemicals to make a good product. Is there any way whereby it may be made up in parts and when needed the requisite quantities combined after the manner of Fehling's solution? Do you know any way to circumvent its deterioration? I believe this valuable old-timer would be revived if it could be more easily made up by the average rural pharmacist. W. C. O'NEAL.

ANSWER.—The United States Pharmacopeia directs that solution of ammonium acetate be made by dissolving 5 gm. ammonium carbonate, translucent and free from white pulverent matter, in 109 c.c. dilute acetic acid. The acetic acid directed is slightly in excess of that required to react with the ammonium carbonate and a solution results containing, besides ammonium acetate, a small amount of acetic acid, to which the acidulous taste is due. Since, however, ammonium carbonate changes in composition when exposed to air and the dilute acetic acid may be too strong or too weak, a solution may result which either is strongly acid or else alkaline and bitter. When means to determine the quality of the ammonium carbonate and acetic acid are not available, the following procedure will be found satisfactory: To the dilute acetic acid, add the ammonium carbonate in small pieces until further additions no longer cause active effervescence. This solution should have a faintly sour taste; if its taste be found to be strongly acid, more ammonium carbonate, or if alkaline and bitter, more acetic acid, must be added. With a little practice, the sense of taste will be a very good indication of the quality of this solution. A solution which, on standing, has become alkaline, may be at least partially restored by the addition of sufficient acetic acid to produce a solution of mildly acid taste. The practice of keeping on hand separate solutions of acetic acid and of ammonium carbonate is fairly satisfactory if the amount required of each solution to produce this faintly acidulous solution is determined as just indicated.

The Public Service

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending March 31, 1906:

Crosby, Wm. D., surgeon will, at the expiration of his present leave of absence, proceed to Vancouver Barracks, Washington, for duty.

Morse, Charles F., asst.-surgeon, will, at the expiration of his present leave, proceed to Fort Howard, Md., for duty.

Wilson, Compton, asst.-surgeon, relieved from duty at Fort Howard, Md., and ordered to Fort Sheridan, Ill., for duty.

Marrow, Charles E., asst.-surgeon, relieved from duty at Fort Sheridan, Ill., and ordered to Fort Monroe, Va., for duty.

Hanner, John W., asst.-surgeon, will, at the expiration of his present leave, proceed to West Point, N. Y., for duty.

Huggins, John B., asst.-surgeon, relieved from duty in the Army Transport Service, and will proceed to Manila, P. I., for duty on transport sailing from San Francisco, Cal., March 26, 1906.

Chidester, W. C., asst.-surgeon, advanced from rank of first lieutenant to that of captain, to date from March 24, 1906.

Ashford, B. K., asst. surgeon, relieved from duty at Henry Barracks, Cayey, Porto Rico, and from further special duty under the governor of Porto Rico, to take effect April 1, 1906, and will proceed to and take station at Washington Barracks, Washington, D. C.

Turrill, Henry S., brigadier general, appointed brigadier general, U. S. Army, to rank from March 28, 1906.

Moseley, E. B., asst.-surgeon general, promoted to rank of Colonel, to date from March 17, 1906.

LaGarde, Louis A., deputy surgeon general, promoted to rank of lieutenant colonel, to date from March 17, 1906.

Straub, Paul F., surgeon, promoted to rank of major, to date from March 17, 1906.

Turrill, Henry S., brigadier general, retired from active service, March 29, 1906.

Whitmore, E. R., asst.-surgeon, assigned to duty at Fort Warren, Mass.; order suspended until return of Major Charles Richard, surgeon, to Fort Jay, N. Y.

Heizmann, Charles L., asst.-surgeon general, relieved from duty in S. G. O., Washington, D. C., April 20, 1906, and ordered to San Francisco, Cal., for duty as chief surgeon, Department of California, and Superintendent of the Army Transport Service, relieving Lieut. Col. Geo. H. Torney, deputy surgeon general.

Harvey, Philip F., asst.-surgeon general, relieved from duty as chief surgeon, Department of the Lakes, May 1, 1906, and ordered to Governor's Island, N. Y., for duty at chief surgeon, Department of the East, relieving Colonel Valery Havard, asst. surgeon general.

Havard, Valery, asst.-surgeon general, relieved from duty as chief surgeon, Department of the East, and will repair to Washington, D. C., and report in person to the Surgeon General of the Army for duty in his office, and as president of the faculty of the Army Medical School and president of the Army Medical Board.

Cowper, H. W., asst.-surgeon, relieved from duty at Washington Barracks, D. C., and ordered to Plattsburg Barracks, N. Y., for duty.

Woodbury, F. T., asst.-surgeon, leave of absence extended 20 days.

McMillan, Clemens W., contract surgeon, ordered from Fort Trumbull, Conn., to Fort Terry, N. Y., for temporary duty.

Hall, Henry M., contract surgeon, granted an extension of one month to his leave of absence.

Gardner, Fletcher, contract surgeon, relieved from duty at Fort Crook, Neb., and ordered to duty at Fort Michie, N. Y.

McMillan, Clemens W., contract surgeon, relieved from duty in the Department of the East, and ordered to duty at Fort Crook, Neb.

Whitney, Walter, contract surgeon, relieved from duty at Fort Crook, Neb., and ordered to Fort Terry, N. Y., for duty.

Navy Changes.

Changes in the Medical Corps, U. S. Navy, for the week ending March 31, 1906:

Traynor, J. P., P. A. surgeon, from the Naval Hospital, Boston, April 10, and ordered to the *Southery* and to additional duty at the Navy Yard, Portsmouth, N. H.

Munson, F. M., asst.-surgeon, from the *Lancaster,* April 12, and ordered to the Naval Medical School, Washington, D. C., for instruction.

Shaw, asst.-surgeon, from the *Southery,* April 11, and ordered to the Naval Medical School, Washington, D. C., for instruction.

Backus, J. W., asst.-surgeon, from the *Hancock,* April 12, and ordered to the Naval Medical School, Washington, D. C., for instruction.

Jenness, B. F., asst.-surgeon, from the Naval Hospital, Navy Yard, N. Y., April 12, and ordered to the Naval Medical School, Washington, D. C., for instruction.

Marshall, E. R., asst.-surgeon, from Naval Medical School, Washington, D. C., March 31, and ordered to the Naval Station, Guantanamo, Cuba, and to additional duty on the *Monongahela,* sailing from New York, April 6.

Foster, T. G., asst.-surgeon, from the Naval Medical School, Washington, D. C., March 31, and ordered to the *Chicago.*

Shook, F. M., asst.-surgeon, from Naval Medical School, Washington, D. C., March 31, and ordered to the Naval Hospital, Mare Island, Cal.

Reed, T. W., asst.-surgeon, from Naval Medical School, Washington, D. C., March 31, and ordered to the Navy Yard, New York, April 10.

Horn, asst.-surgeon, from Chicago, and ordered home to await orders.

Nelson, H. T., Jr., asst.-surgeon, from Naval Medical School, Washington, D. C., and ordered to the Naval Academy, April 10.

Pugh, W. S., Jr., asst.-surgeon, from Naval Station, Guantanamo, Cuba, and ordered home to wait orders.

Hathaway, G. S., asst.-surgeon, McConnon, G. H., asst.-surgeons, from Naval Medical School, Washington, D. C., March 31, and ordered to the *Constellation.*

Taylor, J. L., asst.-surgeon, from Naval Medical School, Washington, D. C., March 31, and ordered to the *Yankee,* sailing from New York, April 4.

Olson, G. M., Extinge, E. O. J., Sellers, F. E., asst.-surgeons, from Naval Medical School, Washington, D. C., March 31, and to Asiatic Station, sailing from San Francisco, April 14.

Munger, C. B., asst.-surgeon, from Naval Medical School, Washington, D. C., March 31, and ordered to the Naval Training Station, San Francisco.

Landon, M. E., asst.-surgeon, from Naval Medical School, Washington, D. C., March 31, and ordered to the Naval Station, Tutuila, Samoa.

Dean, F. W. S., Dykes, J. R., asst.-surgeons, from the *Oregon,* and ordered to Washington, D. C., for special duty, thence home to wait orders.

Aboken, F. G., asst.-surgeon, from Naval Station, Tutuila, Samoa, and ordered home to wait orders.

Rossiter, P. S., asst.-surgeon, from Naval Station, Honolulu, H. I., and ordered home to wait orders.

Wilcox, E. C., Brooks, F. H., Warner, R. A., Stalnaker, P. R., Reed, E. U., Mears, J. R., Woods, E. L. asst.-surgeons, from the Naval Medical School, Washington, D. C., March 31, and directed to wait orders.

Huntington, E. O., surgeon, discharged from treatment at Naval Hospital, N. Y., and ordered to the Naval Recruiting rendezvous, New York, N. Y., April 12.

Kerr, D. R., surgeon, ordered to Naval Medical School, Washington, D. C., April 14, for instruction.

Marsteller, E. H., surgeon, to Naval Recruiting Station, St. Louis.

Asserson, F. A., P. A. surgeon, from Navy Yard, New York, April 12, and to Naval Medical School, Washington, D. C., April 14, for instruction.

Moore, J. M., P. A. surgeon, from the Naval Recruiting Station, New York, to Naval Medical School, Washington, D. C., April 14, for instruction.

Webb, U. R., P. A. surgeon, from the Naval Academy and to the Naval Medical School, Washington, D. C., April 14, for instruction.

Mayers, G. M., asst.-surgeon, from the *Constellation* and to the Naval Medical School, Washington, D. C., April 14, for instruction.

Michels, R. H., asst.-surgeon, from the Naval Recruiting Station, St. Louis, and to Naval Medical School, Washington, April 14, for instruction.

Winn, C. K., acting asst.-surgeon, from the Naval Hospital, Washington, D. C., and ordered home to wait orders.

Smith, C. G., P. A. surgeon, from the Naval Hospital, Mare Island, Cal., April 10, and to the Naval Station, Honolulu, H. I., sailing from San Francisco, April 14.

Guthrie, J. A., surgeon, having been examined by a retiring board and found incapacitated for active service on account of disability incident thereto, is retired from active service, March 23, 1906, under the provisions of Section 1453, Revised Statutes.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending March 28, 1906:

Austin, H. W., surgeon, detailed as delegate on part of the United States to represent the service at the meeting of the Fifteenth International Congress of Medicine, to be held at Lisbon, Portugal, April 19-25, 1906.

Stansfield, H. A., P. A. surgeon, granted leave of absence for three days under Paragraph 191 of the Regulations, from March 16, 1906.

Francis, Edward, P. A. surgeon, directed to proceed to New Orleans, La., for special temporary duty, on completion of which to rejoin his station.

Ebersole, E. E., asst.-surgeon, relieved from duty at San Francisco and directed to proceed to Manila, P. I., reporting to P. A. Surgeon V. G. Heiser, chief quarantine officer, for duty.

Bailey, C. A., acting asst.-surgeon, excused without pay for three days from March 25, 1906.

Frick, John, acting asst.-surgeon, transferred from Tampico, Mexico, to Vera Cruz, Mexico, for duty in office of American consulate.

Hamilton, H. J., acting asst.-surgeon, granted leave of absence for 11 days from March 5, 1906, on account of sickness.

Woods, C. H., pharmacist, granted three days' leave of absence, from March 17, 1906, under Paragraph 210 of the Regulations.

Carlton, C. C., pharmacist, granted one day's leave of absence under Paragraph 210 of the Regulations.

CASUALTY.

Richardson, T. F., P. A. surgeon, died in New Orleans, March 19, 1906.

RESIGNATION.

Stephenson, Charles W., pharmacist, resigned as pharmacist of the first class, to take effect April 11, 1906.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the surgeon-general, Public Health and Marine-Hospital Service, during the week ended March 30, 1906:

SMALLPOX—UNITED STATES.

California: Los Angeles, March 3-17, 3 cases; San Francisco, March 10-17, 7 cases, 1 death.
Colorado: Idaho Springs, Feb. 1-28, 1 case.; South Canon, 1 case.
Florida: Jacksonville, March 17-24, 4 cases.
Illinois: Chicago, March 17-24, 1 case.
Kansas: General, Jan. 1-31, 125 cases, 1 death.
Kentucky: Covington, March 17-24, 2 cases.
Louisiana: New Orleans, March 17-24, 7 cases.
Maryland: Baltimore, March 17-24, 3 cases.
Michigan: Ann Arbor, March 17-24, 1 case; Detroit, 1 case.
Mississippi: Gulfport, March 19-26, 1 case; Natchez, March 10-17, 1 case.
Missouri: St. Louis, March 17-24, 7 cases.
New York: New York, March 17-24, 1 case.
Ohio: Cincinnati, March 10-23, 5 cases.
Pennsylvania: Pittsburg, March 17-24, 1 case.
Tennessee: Memphis, March 17-24, 14 cases.
Utah: General, Feb. 1-28, 232 cases; Salt Lake City, March 3-17, 39 cases.
Virginia: Petersburg, March 1-26, 21 cases.
Washington: Spokane, March 10-17, 1 case.
West Virginia: Wheeling, March 17-24, 5 cases.
Wisconsin: Appleton, March 17-24, 2 cases; Beloit, March 10-24, 2 cases.

SMALLPOX—INSULAR.

Hawaii: Honolulu, March 12, 1 on S. S. *Coptic.*
Philippine Islands: Manila, Feb. 3-10, 2 cases.

SMALLPOX—FOREIGN.

Africa: Cape Town, Feb. 3-17, 7 cases.
Brazil: Pernambuco, Feb. 1-15, 21 deaths.
Canada: Toronto, Feb. 24-March 3, 1 case.
China: Hongkong, Jan. 26-Feb. 3; 9 cases, 7 deaths; Shanghai, Feb. 10-17, 2 cases, 3 deaths.
France: Paris, Feb. 24-March 10, 21 cases.
Gibraltar: Feb. 25-March 11, 11 cases, 4 deaths.
Great Britain: Glasgow, March 9-16, 2 deaths; Liverpool, March 3-10, 3 cases; London, 1 case.
Greece: Athens, Feb. 20-27, 3 deaths.
India: Calcutta, Feb. 10-17, 118 deaths; Bombay, Feb. 20-27, 7 deaths; Karachi, Feb. 18-25, 52 cases; 13 deaths; Rangoon, Feb. 10-17, 103 deaths; Madras, Feb. 17-23, 20 deaths.
Spain: Barcelona, March 1-10, 5 deaths.

YELLOW FEVER—FOREIGN.

Mexico: Merida, March 4-10, 3 cases.
Nicaragua: Managua, Feb. 10-24, 2 deaths.

CHOLERA—INSULAR.

Philippine Islands: Manila, Jan. 26-Feb. 10, 7 cases, 8 deaths; Provinces, Feb. 3-10, 195 cases, 165 deaths.

CHOLERA—FOREIGN.

India: Bombay, Feb 20-27, 1 death; Calcutta, Feb. 10-17, 79 deaths; Rangoon, 5 deaths.

PLAGUE—INSULAR.

Philippine Islands: Manila, Jan. 27-Feb. 10, 2 cases, 2 deaths.

PLAGUE—FOREIGN.

Brazil: Bahia: Feb. 22, present.
China: Hongkong, Feb. 3-10, 6 cases, 6 deaths.
India: Bombay, Feb. 20-27, 229 deaths; Calcutta, Feb. 10-17, 32 deaths; Karachi, Feb. 17-25, 12 cases, 11 deaths; Madras, Feb. 17-23, 1 death; Rangoon, Feb. 10-17, 33 deaths.
Paraguay: Asuncion, March 28, present.
Peru: Callao, Feb. 13-26, 1 death; Lambayeque, 3 cases, 1 death; Lima, 1 case; Mollendo, 3 cases, 2 deaths; Paita, 5 cases, 2 deaths; Trujillo, 31 cases, 11 deaths.

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Book Notices

PSYCHIATRY. A Text-book for Students and Physicians, by S. Paton, M.D. Cloth. Pp. 618. Price, $4.00. Philadelphia: J. B. Lippincott Co. 1906.

Within the past few years there has been a decided stimulation of interest in mental disorders, if we are to judge by the output of textbooks on the subject. This candidate for favor is noteworthy in many respects, coming, as it does, from one of the chief centers of scientific medicine in the country and from an author who has already made himself known by scientific original work in this department. It may be fairly expected, therefore, to give the results of the best modern acquisitions as seen from the author's point of view, which includes the latest results of pathology and the newer psychology, so-called, but fully admitting, also, their limitations.

Insanity is regarded by him as a disease of the brain, with some qualifications. Thus he considers that we can not call myxedematous insanity, dependent on disturbed thyroid function, strictly a disease of the brain—a distinction, it seems to us, less practical than theoretical. The symptoms of insanity take up the greater part of the introductory chapters, that is, the non-somatic symptoms, which are very fairly well covered in these chapters. Then follows an instructive chapter on the examination of patients, concluding with details in regard to the examination of the cerebrospinal fluid, a procedure which the author says is indicated in all doubtful cases, especially when it is necessary to differentiate between functional and organic disorders, though the exact significance of the findings can not always be clearly defined.

In the chapter on treatment, special stress is laid on hydrotherapy and the "rest in bed" treatment which, according to the author, should be a routine method. The ideal hospital for the insane is described in the succeeding chapter, and this should be distinguished from the ordinary asylum or state hospital which is the only recourse for the majority in most parts of the country. It is more strictly a curative institution of limited capacity and adapted for recent and hopeful cases. The hospital treatment should be always to the fore and the attendants have general hospital training, as well as the special instruction required for those who care for the mentally diseased. There is no question as to the value of such institutions and their multiplication in the great centers, and especially in connection with the institutions for medical instruction, is in every way desirable. But for the great mass of the insane who, for obvious reasons, do not come under the head of curable cases, the larger institutions will still be the ones chiefly available.

The causes of insanity are very well discussed in a special chapter, and a few pages are given to the subject of classification, in which the author follows a system of his own, adopting, however, the popular Kraepelin groups of "manic depressive" insanity and "dementia præcox." The descriptions of the different forms are generally very clear and complete. Korsakow's disease receives more attention than has been given it in most recent textbooks and is described in connection with the confusional types to which it properly belongs. A little more space, it seems to us, might have been given to this class of cases from autointoxication or exhaustion, constituting, as they do, a very respectable portion of the really curable forms of insanity, and, therefore, those which would be most suited for the treatment in special psychiatric hospitals. The very comprehensive groups of "manic depressive" insanity and "dementia præcox" receive full treatment and an almost equal space is given to the subject of paresis.

Paranoia is narrowed down to a small residual group remaining after the inclusion of most of its formerly recognized types under other heads, and it seems to us that the author's experience must have been somewhat different from that of other alienists as regards this particular and very important type of insanity. He gives as an example of the confusion of ideas on this subject the conceptions of Sander's so-called "original paranoia." It seems to us that if there is any clinical type of derangement that deserves recognition it is this, though it may be questioned whether it properly belongs under the head of true systematized delusional insanity. Typical cases are not very common and in a limited clinic like that of Kraepelin they may be rare, but they are very striking when they occur. The chapter on the paranoia group seems to be as little satisfactory as any in the book.

Taking the work as a whole, it is a valuable addition to psychiatric literature and one which no alienist can well neglect. The author is modern in his ideas and his book contains a wealth of references, especially to the German literature of the subject. A practical idea indicated by the author in his preface, is that the study of the subject of psychiatry will tend more or less directly toward enriching the brain power of mankind, and that its results will have an important bearing as applied to educational and other questions of the day.

NASAL SINUS SURGERY, with Operations on Nose and Throat. By B. Douglass, M.D. Illustrated, with 67 half-tone and colored plates. Cloth. Pp. 264. Price, $2.50 net. Philadelphia: F. A. Davis & Co., 1906.

This volume will be welcomed by rhinologists and senior students. The anatomy of the sinuses and their relations to the nasal cavities, orbits and the brain are illustrated by many fine photographic half-tones of anatomic preparations. The descriptions are enforced by iteration and reiteration and by measurements of numerous specimens. The various methods of examination used in making a diagnosis of sinus disease are clearly described. Most of the standard operations on the sinuses, both conservative and radical, are outlined. The author lays especial stress on the danger of enlarging the nasofrontal duct by intranasal operation, giving five reasons for his objection. Whether the recently perfected operation by means of a flexible trephine made to follow a probe will overcome his objection is in doubt, as he did not refer specifically to this method. In the chapter on operations for deflection and exostosis of the septum the author points out that in cases of combined deflection and thickening a careful removal of the latter will in many cases render an operation for the deflection unnecessary. The subject exostosis is also considered in connection with synechiæ. Ten pages are devoted to the description of operations for the relief of nasal deformities, and a detailed description of making paraffin injections for the relief of the saddlenose deformity and the dangers to be avoided are given. It will doubtless help the profession to appraise this procedure at its true value and to rescue it to a degree from the advertising quack. The author's tonsil needle to suture the pillars of fauces to control tonsillar hemorrhage is figured and the procedure is illustrated with a cut. Laryngotomy and tracheotomy are carefully described and beautifully illustrated with colored plates and a frontispiece. The book is creditable to both author and publisher.

A TEXT-BOOK OF MATERIA MEDICA, THERAPEUTICS AND PHARMACOLOGY. By George F. Butler, Ph.G., M.D., Associate Professor of Therapeutics in the College of Physicians and Surgeons, Chicago. Fifth Edition, thoroughly revised, by Smith Ely Jelliffe, M.D., Ph.D., Professor of Pharmacognosy and Instructor in Materia Medica and Therapeutics in Columbia University (College of Physicians and Surgeons), New York. Octavo of 694 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1906. Cloth, $4.00 net; Half Morocco, $5.00 net.

This is the fifth edition of Dr. Butler's well-known work, which has been thoroughly revised to conform to the new Pharmacopeia. The general arrangement of the text has been changed so that drugs whose predominant action is on any one system of the body are grouped together. As the author states, any system of grouping has its drawbacks, but this arrangement is both practical and useful. After a brief introduction, pharmacology and general therapeutics are discussed, including modes of introduction of remedies, untoward effects of drugs, classification of medicines, and weights and measures. Pharmaceutical preparations are then considered at length, including solutions, solid and liquid mixtures, extracts, and preparations for external use. Succeeding chapters deal with drugs acting on the nervous system, on the circulatory system, those acting on micro-organisms, volatile oils, resins, and balsams, antipyretics, alteratives, astringents, and drugs acting on particular organs. The book concludes with a chapter on prescriptions which is of special interest and should be of value

to all practicing physicians. Under this head the author considers incompatibility, antagonism, estimation of amounts, and the language and grammatical construction of the prescription. The book is commended as one of the most practical for the general practitioner.

HANDBOOK FOR ATTENDANTS ON THE INSANE, with an appendix giving the Regulations for the Training and Examination of Candidates for the Certificate of Proficiency in Nursing of the Medico-Psychological Association of Great Britain and Ireland. Fourth Edition. Reprinted, with Revised Regulations. Published by the authority of the Medico-Psychological Association. Cloth. Pp. 158. Price, 80c net. Chicago: W. T. Keener & Co.

This, the authorized book of the British Medico-Psychological Association for attendants on the insane, appears to meet very fairly the need which has called it forth. Not all the duties of an attendant are or can be taught by books. Natural fitness and experience are indispensable. We may say of an attendant for the insane, still more than of a trained nurse, that he is born, not made. The book also does not completely cover the course which attendants in British hospitals for the insane are called on to take up and study, but it is an essential text-book. Its republication in this country is a matter for congratulation, for, though we have some works on this subject, an opportunity for choice is always desirable. The fact that each edition is revised by committees including some of the best known and most experienced alienists of Great Britain is a strong recommendation.

TEXT-BOOK OF MEDICAL AND PHARMACEUTICAL CHEMISTRY. By E. H. Bartley, B.S., M.D., Ph.G. Sixth Edition, thoroughly revised; 90 illustrations. Cloth. Pp. 734. Price, $3.00. Philadelphia: P. Blakiston's Son & Co. 1905.

When any text-book arrives at its sixth edition it has demonstrated its value and should be considered beyond the field of the reviewer. While teachers of chemistry will differ as to the best method of presenting this subject, especially as regards the consideration of chemical theories, and while it is to be regretted that the author has considered it undesirable to bring the work in accord with modern conceptions of chemistry, all must concede that Dr. Bartley's long experience as a teacher has enabled him to present the subject in an admirable manner. Beginning with chapters on heat, light, electricity and the chemical theories, the author passes over to the consideration of inorganic and organic compounds, and finally takes up physiologic chemistry, to which more than 150 pages are devoted, and succeeds in presenting this vast material in a clear, concise and logical manner. Few text-books on chemistry designed for medical students compare favorably with Dr. Bartley's work.

LECTURES ON TROPICAL DISEASES, Being the Lane Lectures for 1905, Delivered at Cooper Medical College, San Francisco, U. S. A., August, 1905, by P. Manson. Cloth. Pp. 230. Price, $2.50 net. Chicago: W. T. Keener & Co. 1905.

Sir Patrick Manson's lectures present the chief facts concerning some of the important tropical diseases in a most fascinating and instructive manner. Seldom are the complex facts and conditions in the mode of infection and dissemination of tropical diseases so stated as to interest the reader in the degree achieved in these lectures. The eminent lecturer's own epoch-making influence and work in unraveling the etiology of filariasis and malaria and other tropical diseases are familiar to all students of medicine. His discussion in these lectures of problems of tropical medicine, still unsolved, of the future influence of the Panama canal, and of other questions of importance reveals the comprehensive grasp and imagination of the master.

MAN AND HIS POISONS. A Practical Exposition of the Causes, Symptoms and Treatment of Self-Poisoning. By A. Abrams, A.M., M.D. Illustrated. Cloth. Pp. 268. Price, $1.50. New York: E. B. Treat & Co., 1905.

In the preface the author states that self-poisoning has advanced from a plausible and fascinating theory to a verity. In the first chapter he reviews the various conceptions of life and touches on the investigations of Loeb. In succeeding chapters he discusses the history of autointoxication; the modern views of disease; the influence of fatigue—mental and physical—on this condition; the toxicology of the emotions and sleep; the physics and chemistry of thought; symptoms of self-poisoning; psychology of living in relation to prevention and cure of autointoxication.

State Boards of Registration

COMING EXAMINATIONS.

ARKANSAS State Board Medical Society, Little Rock, April 10. Secretary, J. P. Runyan, Little Rock.

MISSOURI State Board of Health, Barnes Medical College, St. Louis, April 10-12. Secretary, J. A. B. Adcock, Warrensburg.

WEST VIRGINIA State Board of Health, Parkersburg, April 10-12, Secretary, H. A. Barbee, Point Pleasant.

DISTRICT OF COLUMBIA Board of Medical Supervisors, Washington, D. C. April 12. Secretary, William C. Woodward, Washington, D. C.

MISSOURI State Board of Health University Medical College, Kansas City, April 16-18. Secretary, J. A. B. Adcock, Warrensburg.

ILLINOIS STATE BOARD OF HEALTH, Northwestern University Building, Chicago, April 18-20. Secretary, J. A. Egan, Springfield.

District of Columbia January Report.—Dr. William C. Woodward, secretary of the Board of Medical Supervisors of the District of Columbia, reports the oral examination held at Washington, January, 1906. The number of subjects examined in was 17; total number of questions asked, 80; percentage required to pass, 75. The total number of applicants examined was 16, of whom 13 passed and 3 failed. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
Baltimore Med. Coll.	(1905)	77.9
Columbian University	(1903)	78.7, 91.9
Georgetown University	(1905)	84.1, 85.2, 88.7
George Washington University	(1905)	79.4, 82.7, 84.2
Howard University	(1905)	75
New York Homeo. Med. Coll.	(1886)	76
Southern Homeo. Med. Coll.	(1904)	76.2
University of Virginia	(1905)	85.7
FAILED.		
Georgetown University	(1903) 61.8; (1905)	70.8
University of Michigan	(1900) *	

* Absented himself from part of the examination, no percentage assigned.

Illinois January Report.—Dr. J. A. Egan, secretary of the State Board of Health of Illinois, reports the written examination held at Chicago, Jan. 18-20, 1906. The number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of applicants examined was 27, of whom 21 passed and 6 failed. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
Miami Med. Coll.	(1893)	90.4
Detroit Coll. of Med.	(1901) 88.4; (1904)	83.5
Baltimore University	(1903)	76.9
National Medical University.	(1903)	84.6, 90.3
Toledo Med. Coll.	(1904)	76.4
Rush Med. Coll.	(1905) 85.5,	89.2, 91.6
University of Pennsylvania	(1880)	88.4
Illinois Med. Coll.	(1905) 90.6; (1906)	77.1
Medical College of Indiana	(1897) 84.2; (1905)	82.6
Hahnemann Med. Coll., Chicago	(1905)	92
Denver and Gross Coll. of Med.	(1905)	89.1
Eclectic Med. Inst., Cincinnati	(1903)	76.8
University of Naples	(1890)	82.1
Bellevue Hospital Med. Coll.	(1876)	75
Ohio Med. Coll.	(1878)	85.2
FAILED.		
College of P. and S., Keokuk	(1905)	70.1
College of Med. and Surg., Chicago	(1904)	66.9
Barnes Med. Univ.	(1904)	73
American Coll. of Med. and Surg.	(1906) *	
American Med. Miss. Coll.	(1904) *	
National Medical Univ.	(1906) *	

* Took an incomplete examination and no percentage was assigned.

Medical Organization

California.

HANFORD MEDICAL SOCIETY.—At a meeting of the physicians at Hanford, February 15, Dr. Philip Mills Jones, San Francisco, delivered an address in which he urged the benefits of organization and made an earnest plea to those present to maintain the regular meetings of the society and to keep up the attendance.

Georgia.

COWETA COUNTY MEDICAL ASSOCIATION.—This association was organized at Newnan, February 21, by Dr. W. L. Fitts, Carrollton, councilor for the fourth district. The following officers were elected: Dr. Thomas J. Jones, Newnan, president; Dr. Theodore B. Davis, Newnan, vice-president; Dr. T. S. Daley, secretary, and Dr. R. E. Foster, treasurer.

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Kansas.

MIAMI COUNTY MEDICAL SOCIETY.—Physicians of Miami County met at Paola with Dr. J. E. Sawtell, Kansas City, councilor for the seventh district, and organized a county society on the standard plan, with the following officers: Dr. Lyman L. Uhis, Osawatomie, president; Dr. J. Henry Haldeman, Paola, vice-president; Dr. John D. Walthall, Paola, treasurer, and Dr. J. Henry Haldeman, delegate to the state medical society.

HOPKINS COUNTY MEDICAL SOCIETY.—At a meeting of the physicians of Hopkins County, in Madisonville, February 15, the councilor of the second district delivered an address setting forth the benefits of organization. Following this the society was reorganized on the standard plan and the following officers elected: Dr. William K. Nesbitt, Earlington, president; Dr. A. W. Davis, Morton's Gap, vice-president, and Dr. James W. Long, Madisonville, secretary and treasurer.

OHIO COUNTY MEDICAL SOCIETY.—This society was recently organized with the following officers: Dr. Eugene B. Pendleton, Hartford, president, and Dr. A. Francis Stanley, Hartford, secretary and treasurer.

Michigan.

CALHOUN COUNTY MEDICAL SOCIETY.—To facilitate the war against unlicensed practitioners, which this county society undertook some time ago, the society has become incorporated, with the following officers: President Dr. Herbert A. Powers; secretary, Dr. Eugene Miller, and treasurer, Dr. Clarence C. Vary, all of Battle Creek.

New Hampshire.

CHESHIRE COUNTY MEDICAL SOCIETY.—At the midwinter meeting of this society, held in Keene, February 13, the constitution and by-laws were revised so as to conform to those proposed for county societies by the American Medical Association.

Texas.

FRISCO-CENTRAL MEDICAL SOCIETY.—At the joint meeting of the medical societies of Erath, Comanche and Hamilton counties, held in Dublin early this month, a new body was organized to comprise in its membership all physicians on and near the lines of the St. Louis & San Francisco and Texas Central railways in these counties. The following officers were elected: Dr. James F. McCarty, Comanche, president; Drs. William E. Hubbert, Hico; Thomas J. Farmer, Dublin, and G. H. Chilton, Comanche, vice-presidents, and Dr. O. A. Craigwall, Stephenville, secretary.

RED RIVER COUNTY MEDICAL ASSOCIATION.—This association was organized at Clarksville, March 9, on the standard plan, with the aid of Dr. Holman H. Taylor, Marshall, councilor of the Fifteenth district. The following officers were elected: President, Dr. Charles T. Clark, Clarksville; vice-president, Dr. Robert Jones, Rosalie; secretary and treasurer, Dr. J. T. Hutchinson, and censors, Drs. E. S. Chambers, English; Nowlin Watson, Clarksville, and Claud Scott.

Society Proceedings

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Boston, June 5-8.

Tennessee State Medical Association, Memphis, April 10.
Medical Association of the State of Alabama, Birmingham, April 17.
Medical Society of the State of California, San Francisco, April 17-19.
Florida Medical Association, Gainesville, April 18.
Medical Association of Georgia, Augusta, April 18.
Mississippi State Medical Association, Jackson, April 18.
South Carolina Medical Association, Columbia, April 18.
State Medical Association of Texas, Fort Worth, April 24-26.
Arizona Medical Association, Phoenix, April 24-25.
Medical and Chirurgical Faculty of Maryland, Baltimore, April 24-26.

MEDICAL SOCIETY OF THE MISSOURI VALLEY.

Eighteenth Semi-Annual Meeting, held at St. Joseph, Mo., March 22-23, 1906.

The President, DR. JOHN E. SUMMERS, Omaha, in the Chair.

Surgical Treatment of Goiter.

DR. CHARLES H. MAYO, Rochester, Minn., based his remarks on 200 operations. He said that large cystic and encapsulated tumors within the gland can be enucleated to save useful gland substance. In exophthalmic goiter one lobe and the isthmus should be removed, and if there is recurrence of symptoms, the lower part of the remaining lobe should be taken away. In the worst cases this should be done at the primary operation. Operation is no longer experimental; medical and serum-therapy are still under discussion. Fearing malignancy, early operations are recommended in irregular and hard tumors. More than one-half the operations performed on the thyroid gland are those of expediency. Is is, therefore, necessary that a low mortality rate accompany operations for goiter. During the last fifty years the mortality has been reduced from 40 per cent. to a fraction of 1 per cent.

DISCUSSION.

DR. L. L. MCARTHUR, Chicago, said that Rogers of New York presented in THE JOURNAL A. M. A., Feb. 17, 1906, a promising method of treatment of the exophthalmic type of goiter. He was led to his investigations through the sufferings of his wife. When her condition became so severe that it seemed she was about to die, he became desperate enough to try some serum experiments. He made emulsions of recently excised goiters of the exophthalmic type and injected them into rabbits. From the rabbits he obtained a serum, one injection of which practically annihilated all the symptoms of goiter in his wife. The condition of sixteen patients treated was so alarming when the injection was made that as yet he has hesitated to put it into the hands of the profession, and has refused to use it, except in those cases that are deemed so extremely desperate that even the surgeon prefers not to undertake operative intervention.

DR. T. C. WITHERSPOON, St. Louis, Mo., has operated in eighteen cases of exophthalmic goiter; in seventeen with local anesthesia. About five weeks ago he removed an exophthalmic goiter from a patient suffering at the same time from a malignant disease of the breast. Her pulse averaged 140. One week after removal of the goiter she was in good condition. Pulse dropped to 95. He used a general anesthetic (ether), and removed the breast radically, and within five hours after the operation her pulse was 170. While on the table her condition was good. The amount of blood lost was small. There was no reason for the high pulse, except the general anesthetic. After that time the pulse quickly dropped, and she recovered. His fear has always been the ill-effect of general anesthesia.

DR. MAYO said that Dr. Rogers has undoubtedly developed a cytolysin for the destruction of the thyroid. Rogers has had twelve cases of more or less severe types of exophthalmic goiter, in many of which the results are favorable, while in others no benefit has resulted.

Pathology of the Morphin Habit.

DR. S. GROVER BURNETT, Kansas City, Mo., condemned (1) the acute hyoscin poisoning method, attended by coma, delirium and reactionary prostration of both mental and physical forces; (2) the abrupt disuse of the drug, as is enforced in jails, penal institutions and asylums; (3) the rapid withdrawal of the drug during four to eight days; (4) the so-called slower reduction requiring fourteen to twenty days. In his opinion the foregoing methods can only be applied to selected cases. Burnett gave at considerable length his preferred method of treatment.

DISCUSSION.

DR. F. E. COULTER, Omaha, said that in cases of morphin habit or drug addiction it is very essential to have the hearty co-operation of patient before one is going to be successful in any line of treatment he may inaugurate. The patient should be placed in pleasant surroundings. His associates must be congenial. The nurse must be satisfactory to the patient. Coulter employs what is known as the physiologic method.

Is Vaginal Cesarean Section Justifiable?

DR. PALMER FINDLEY, Omaha, drew the following conclusions: 1. Less time is consumed in delivering the fetus by the ab-

dominal route. 2. Greater accuracy is assured in surgical cleanliness by the abdominal route. 3. The abdominal incision is wholly under control of the operator, whereas in the extraction of the fetus per vaginam, the incision may extend beyond the control of the operator, as it has in more than one case, and with fatal results from hemorrhage and infection. 4. In an abdominal Cesarean section opportunity is afforded of rendering the patient sterile by resecting the tubes when thought advisable, and various lesions, such as adhesions, tumors of the uterus demanding hysterectomy, bands as the result of ventrofixation, and diseased appendages, can be dealt with. 5. The abdominal route assures the fetus of the greatest consideration, inasmuch as the application of forceps and the turning of the child in utero are necessarily attended by dangers to the fetus. 6. Rupture of the uterus in subsequent pregnancies through the scar of a Cesarean section is a not uncommon accident, and it is apparent that since the large majority of ruptures of the uterus are in the lower uterine segment, a scar at this point will more likely be disposed to rupture than one located in the fundus. In the light of reported cases, and judging by the results obtained in the use of other well-established methods of delivery in cases similarly indicated, vaginal Cesarean section is not destined to find general favor with trained obstetricians. The legitimate scope of the operation will be so limited that it will be little practiced.

Surgical Treatment of Total Prolapse of Uterus.

DR. C. O. THIENHAUS, Milwaukee, Wis., prefers those methods which make use of the body of the uterus as a support to the bladder, because thereby a recurrence of the accompanying cystocele, which so often takes place after other methods of surgical procedure, is made absolutely impossible. He described at length a method used by himself, a modification of the Schauta and Dührssen operations, and reported nine cases on which he had operated, with their results.

DISCUSSION.

DR. A. H. CORDIER, Kansas City, Mo., sees no objection to departing from some of the older methods for holding the uterus in proper position. If the patient has passed the menopause, and does not expect to become pregnant again, bring the uterus up and anchor it to the anterior abdominal wall. It has been his custom to do a ventrofixation in the old cases, and doing complete repair of the perineum, both anterior and posterior, not simply making a skin flap operation in the vagina, but repairing the muscles, re-establishing them, and putting the uterus in normal position.

DR. O. BEVERLY CAMPBELL, St. Joseph, Mo., said that there is a class of cases in which the procidentia has remained for a long period of time, in which the vaginal mucosa has ulcerated to such an extent that it is almost destroyed, and he has seen a few such cases, especially women, say 65 years of age, old maids or widows, where matrimony does not enter as a factor, in which he believes the more radical operation of Prof. A. Martin removing the entire vagina and uterus, and closing up the opening, would give better results than the operation described by Dr. Thienhaus. Ventrosuspension for the cure of procidentia has been a most unsatisfactory procedure.

Tumors of the Cerebellum.

DR. F. E. COULTER, Omaha, reported a case, and discussed the question of neoplastic growths in the posterior fossa of the skull, taking up the etiology, symptomatology and diagnosis, the object being to emphasize the more common signs and symptoms of disease in this location, thus making of more practical importance the questions of diagnosis and treatment.

Blastomycetic Dermatitis.

DR. WILLIAM FRICK, Kansas City, Mo., reported three cases. The histopathology of the three cases was practically the same as that described by other observers. The most characteristic thing appears to him to be the miliary abscesses which are found both in the epidermis and in the corium. It is in these abscesses that the organism is most abundantly found. Another interesting point is the large number of giant cells resembling those seen in tuberculosis. Since these cases follow a fairly definite clinical course, there seems no reason why a clinical diagnosis should not be made, which diagnosis, for the present, at least, should be corroborated by the microscope. Given a case beginning as a papule or pustule, with a considerable inflammatory zone surrounding it, which instead of improving when the pus which first forms is discharged, extends this zone of inflammation and shows near the surface the formation of miliary abscesses, the case may be expected to be one of blastomycosis. This may then be verified by microscopic findings in the pus or in small pieces of tissue, or both. The treatment consists in excision, the administration of iodin compounds, and the use of the *x*-ray. Since the point of entrance is usually some exposed surface of skin, if an early diagnosis is made, a complete excision will usually end the case, and is the quickest and most satisfactory method of disposing of it. This disease, while confined to the skin, may be considered a curable affection, but if it becomes systemic, it is beyond the reach of remedies now in vogue.

DR. CHARLES G. GEIGER, St. Joseph, Mo., said that the clinical aspects of the disease may be mistaken for three other skin affections—tuberculosis verrucosa cutis, fungous syphiloderm, and lupus vulgaris. He discussed the differential diagnosis of these affections.

Intestinal Tuberculosis and Its Surgery.

DR. L. L. MCARTHUR, Chicago, said that it has been demonstrated that while the vast majority of cases of intestinal tuberculosis are secondary, there yet exists a goodly proportion of cases of primary intestinal tuberculosis without other discoverable lesions. With the reopening of the question which has heretofore been accepted as settled, that infection almost invariably occurs through the respiratory tract, the latest and more painstaking observations show that through the intestinal tract a far larger number of cases of infection occur than has been thought or deemed possible. Practically nursing children and milk-fed infants are the only ones afflicted with true primary intestinal tuberculosis, because (1) they are the ones exposed most commonly to infected food; (2) their intestinal tract is less resistant to such invasions.

While Eisenhardt and Fenwick found only 1 in 1,000 cases of autopsy that they considered primary, on the other hand few cases of tuberculosis of the respiratory tract escape ultimate secondary intestinal tuberculosis. Thus Eisenhardt, in his 1,000 autopsies of tuberculous adults, found 563 cases of intestinal infection, of whom 489 had cavities in their lungs. Intestinal tuberculosis is frequently overshadowed by the pulmonary disease. But inasmuch as the presence of cavities determines so regularly the intestinal infection, the absence of cavity will have a decided prognostic value in those cases that clinically come to the surgeon for aid. These will, in the largest proportion of cases, be over 25 years.

The author's study of the literature and his personal experience have led him to the following conclusions: (1) The term primary tuberculosis of the intestines is both clinically justified and often demonstrable on section. (2) In selected cases, though desperate, surgical interference offers reasonable hope. (3) The capacity for withstanding surgical interference is greater for this condition than that which obtains with other abdominal affections of like magnitude. (4) The first symptoms of this disease may begin as and even be mistaken for an appendicitis. (5) Partial or total exclusion will in some cases accomplish the desired results when conditions contraindicate excision. (6) The ulcerative variety may make numerous fistulæ, as in the author's cases. (7) Simple inflammatory processes are apt in a tuberculous subject to become tubercular, and terminate as above. (8) Surgery offers much hope to an otherwise probably fatal issue. (9) Many a case of general abdominal tuberculosis is the end result of a preceding intestinal tuberculosis which might have been at one time operable. (10) Both bovine and human tubercle bacilli, while not identical, are related varieties of one original form. (11) The cutaneous hand infections of butchers is a strong argument against absolute difference.

Postoperative Treatment of Clubfoot.

DR. M. M. EDMONSON, Kansas City, Mo., said that by beginning treatment early the foot can always be corrected by force alone. The soft tissues are stretched easily and the bones that are malformed, especially the astragalus, are soft and cartilaginous, so that they are molded readily to conform to a normal position. At this stage it will require very little force to maintain this position, and it can be accomplished without causing pain. In its new position the foot will develop normally with the rest of the body. The contracted tendons and soft tissues having been stretched, the elongated tendons will become contracted. In maintaining the corrected position at this age, a fixed dressing is probably used more than any other, especially plaster-of-Paris, but in this the ankle joint is immobilized and all the advantages of muscular exercise are lost. It is often difficult to so apply the dressing that the position is as good as that gained by the hand. The Barwell dressing has all the advantages and none of the disadvantages of the plaster-of-Paris or any fixed dressing. It is simple and easily applied.

No case should be cut that can be corrected by force. Following any method of correction some mechanical support is necessary; as the primary cause still exists, some aid must be given in maintaining this muscular balance until nature alone is sufficient, and this has only been reached when the foot can be everted and flexed as easily as it can be everted and extended. Feeling the need of a simple, yet effective retaining force in those cases about four years ago the author devised a brace which he has found more nearly meets all the requirements. The shoe used in connection with the brace is the usual one made for the normal foot. It, however, should be heavy and of the best material. This brace and its method of application were described, followed by the citation of cases.

Indirect Effects of Valvular Lesions.

DR. W. F. MILROY, Omaha, called particular attention to the wide range of symptoms not obviously connected with the heart. These are associated with the gastrointestinal respiratory, or the nervous system, or are more general, as loss of weight, power of concentration or endurance. The date of origin of the symptoms is uncertain, their duration often many years. Endocarditis, which causes the lesion, is secondary to many general infections. A history of rheumatism suggests an examination of the heart for valvular disease, but in the writer's opinion too much importance is given this infection in the etiology. Valvular disease is of far more frequent occurrence than is generally supposed. Clinical teachers and textbook writers are at fault in not emphasizing sufficiently their indirect effects. Gross errors in diagnosis are of very common occurrence. They suggest the necessity for more attentive study of the art of physical diagnosis by the practitioner, and the wisdom of an invariable rule in making such examinations a part of every diagnosis.

Rupture of the Male Urethra.

DR. B. A. MCDERMOTT, Omaha, said that the indications for surgical interference are not ordinarily clear, but usually present themselves as (1) the history of injury; (2) the escape of blood, either with or without urine, at the meatus; (3) the presence of shock; (4) the gradual appearance of a perineal or suprapubic tumor; (5) if a solution of methylene blue is injected through a catheter through the anterior urethra, it will be found coming out through the perineal opening, if one exists; if there be no external opening it will be found in the perineal tissues. The presence of the above conditions is usually sufficient to warrant surgical interference.

The author made a strong plea for early surgical interference based on the following reasons: (1) In cases of rupture of the urethra presenting the foregoing symptoms, immediate perineal or suprapubic section, with suture of the ruptured ends of the urethra, should be practiced. (2) By this procedure not only are the sufferings of the patient lessened, also the danger of urinary infiltration and abscess, but in a large number of cases the formation of a later stricture may be prevented. (3) In early operation the search for the posterior end of the urethra is much easier than it is later, as the tissues are not so infiltrated and the posterior end is not so retracted. The hemorrhage from the branches of the arteries of the bulb serves as a guide to the end of the canal.

Advances in the Office Treatment of Rectal Diseases.

DR. R. D. MASON, Omaha, advocated the treatment of all minor rectal diseases by the use of local anesthesia, using weak eucain solutions of 0.5 to 1 per cent., when injected, and as high as 10 per cent. if applied locally to the mucous membrane. He advocated the injection method of treating a certain class of internal hemorrhoids, and described the cases to which it is adapted as those of the old indurated variety, in which the tumors are hard and painless, and cause inconvenience more because of their constant protrusion through a loose sphincter muscle than because of any actual suffering. He also showed that the use of sterile water as a local anesthetic is useless, except in tissue where it will be retained sufficiently long to make pressure on the nerve ends and drive out the blood. Because of the large amount of water required the tissues are so distorted that operation is difficult. He described a method for divulsing the sphincter under local anesthesia, and discussed the use of the actual cautery for the cure of hemorrhoids, ulcers and other conditions, with the technic.

Removal of the Uterus for Chronic Inflammation.

DR. T. C. WITHERSPOON, St. Louis, advocated the removal of the chronically enlarged uterus whose density and vascularity are increased, which, associated with chronically inflamed and altered tubes, causes local and general symptoms that make life burdensome. Removal of the uterus brings about entire relief, but much depends on the technic of the operation. Three things must be observed: First, removal of the uterus with practically all of its endometrium. Second, avoidance of the large sympathetic pelvic brain. Third, complete closure of the peritoneum covering the pelvic floor in order to avoid bowel adhesions.

The best technic in the removal of the inflamed uterus is as follows: After entering the abdomen by a median suprapubic incision, carefully tie off the tubes, avoiding injury to the ovaries. Apply a clamp on either side of the uterus, letting its tip reach well down to the cervix; free the body of the uterus from the broad ligament attachments by cutting along the clamps; amputate through the cervix by an exaggerated V-shaped incision, the apex of the V reaching nearly to the external os. Tie the cut ends of the utero-ovarian artery loop, after releasing the clamps, with catgut. Close the stump, suturing to it the ovarian and round ligaments. Carefully cover all raw surfaces with periteneum. Iodin catgut should be used as suture and ligature because it resists infection better than silk, linen or cumol gut.

Ligation of Common Femoral Artery for Large Aneurism in Scarpa's Triangle.

DR. L. J. DANDURANT, St. Joseph, Mo., exhibited a man, 42 years of age, who was first seen Nov. 20, 1905. Inquiry revealed a specific infection dating back ten years; also a trauma occurring two years ago in the nature of a horse kick. Examination revealed a large pulsating tumor filling the greater part of Scarpa's triangle, which was diagnosed as an aneurism of the femoral artery. Large doses of iodid of potassium and the induction of coagulation by compression, combined with the rest cure, proving ineffectual, Dandurant ligated the common femoral artery just below Poupart's ligament. All pain ceased; the tumor began to decrease in size. The circulation in the leg and foot was apparently not disturbed. There has not been a sign of edema at any time. In placing his ligature he followed the suggestion of Hunter, tying it tight enough to check the pulsation, but still permitting some blood to flow through the tumor. At the end of four or five days, however, this was entirely shut off, and today there is a well-organized clot, with perhaps a cavity at its center.

The County Sanatorium for the Treatment of Pulmonary Tuberculosis.

DR. RICHARD C. MOORE, Omaha, said that the indications for the successful management of pulmonary tuberculosis are surveillance, disinfection, and by appropriate means to increase the natural power of resistance. These indications can be followed out most satisfactorily by establishing and main-

taining sanatoria. Moore believes that a sanatorium in Nebraska would be a center from which information could be promulgated for the early management of such cases, and would thus in time, by instructing the people in prophylaxis and in the home treatment of consumption, greatly reduce the mortality from this cause. Theoretically the modern treatment of pulmonary tuberculosis can be carried out in the home of the patient, but practically it has been the author's experience that it is impossible to convince the laity, and many of the profession, that night air is not injurious, and that wind, rain or snow should not be excluded from the apartment occupied by the patient, when by such exclusion the free circulation of pure air is also shut out. To carry out this treatment the patient must be placed in a suitably arranged apartment and be absolutely under the constant surveillance of a trained nurse or experienced physician. In order to accomplish this desideratum the well-equipped sanatorium is probably the best, but such institutions are very costly to construct and very expensive to maintain, which renders them prohibitory in many communities. In Nebraska, where the consumptives, as shown by the statistics, are not numerous, the cheapest and most practicable manner of taking care of such cases would be in properly arranged county hospitals. Instead of the ownership and management being under state charge, each county could take care of its own consumptives as it now does its indigent sick and paupers. What is needed to carry out this plan is a well-drained location on which the county authorities can erect suitable buildings for its tuberculous patients in connection with proper facilities for the culinary department and housing of nurses. The author favors a plan similar to that suggested by Dr. Irving Fisher, New Haven, the main feature of which is an arrangement for ventilation by means of shutters, which are changed automatically to the direction of the wind.

The Expectant Mother.

DR. E. T. SHELLY, Atchison, Kas., said that the physician owes it to the expectant mother and to himself to give her the best professional attention he is capable of bestowing. As a necessary part of such attention he should, during the pregnancy, give her such guidance as her condition calls for, and to furnish it in a permanent and accessible form. The author spoke of the desirability of supplying the prospective mother gratuitously with an easily understood original pamphlet issued by the physician himself, and giving her such information as in his opinion she ought to have in order to pass through her ordeal as comfortably and safely as possible. He outlined such a pamphlet.

Rachitis.

DR. A. E. KING, Blockton, Iowa, said that in the pathology we find interrupted nutrition both in and outside of the child, and the malassimilation produces permanent alterations. Rachitis is entirely preventable and should not be associated with mollitis osseum, as the processes are entirely different, one being the destruction of bone, the other non-formation of bone. He pointed out the importance of making an early diagnosis, and of instituting proper treatment.

Surgery of the Paralyses.

DR. JOHN P. LORD, Omaha, said that the general practitioner has too little working knowledge of the benefits to be derived from surgical intervention. The deformities resulting from paralysis are all of a progressive character; therefore, effective treatment instituted before the deformity has begun will prevent the deformity. The mere maintenance of a limb in a corrected position not only prevents deformity, but prevents over-stretching of muscles which, unstretched and treated, might be of some service. This is more especially true in spastic conditions. Oftentimes massage, electricity, bathing, movement and use will do much in maintaining growth in bone, muscle, and ligaments, and will limit deformity. The present tendency is to limit the use of apparatus and resort to such surgical measures as will render the limbs most useful. These operations should be judiciously applied to the individual cases, and supplemented by such treatment as will furnish the greatest aid in completing the results. Time is a great factor.

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Acute Articular Rheumatism.

In discussing the treatment of acute articular rheumatism Shoemaker, in the *New York Medical Journal*, commends very highly the use of salicin internally along with local applications of the oil of gaultheria. He condemns very strongly the use of salicylic acid and coal-tar preparations in the treatment of this condition and further states that the sodium salicylate has been properly succeeded by this glucosidal preparation. Salicin is more acceptable to the stomach and is less irritating to the digestive organs, and has not the depressing effect on the heart and circulation that is observed after the use of salicylic acid. In the opinion of Shoemaker, salicin bears to acute rheumatism very much the same relation that quinin does to malaria; in other words, he regards it as practically a specific for this condition. He also recommends the employment of alkalies in the treatment of acute articular rheumatism, especially potassium citrate, and the solution of ammonium acetate. Owing to the rapid anemia present, due to the loss of red blood corpuscles and destruction of hemoglobin, he recommends the tincture of the chlorid of iron, in combination with the alkalies. Basham's mixture consequently will serve the purpose, being a combination of the iron and ammonium acetate.

When the pulse is rapid and the heart's action is weak, strychnin may be added, or the infusion of digitalis given internally, combined with potassium citrate or sodium bicarbonate. He is strongly opposed to the use of antipyretics in the technical sense of the word. If, however, the temperature is high and maintains an elevation of 103 F. or over, there is always danger of the development of cerebral rheumatism, which may prove to be a fatal condition. In such conditions he recommends the cold bath, repeated often enough to keep down the temperature. It is well in these cases to precede the bath with an alcoholic stimulant, in order to cause dilatation of the peripheral blood vessels, the heart being sustained by hypodermic injections of strychnin and digitalin. The ice-bag may be applied to the precordium, to assist in combating the hyperpyrexia. He recommends morphin in doses of gr. 1/6 to 1/12 (.01-.005) each to an adult, given from time to time to relieve the pain and restlesness and to enable the patient to sleep. [This drug should be given cautiously, however, to avoid the formation of a habit.] The morphin should be combined with atropin in small doses. If the skin should become too dry, small doses of pilocarpin may be injected hypodermically, and warm drinks administered to assist its action. As the tonsils are in many instances the port of entry for many of these infectious organisms, he regards it as very important to disinfect the mouth and throat with proper antiseptic solutions. In summarizing the treatment he advises that the patient be placed in bed in a well-ventilated room in order to afford the most complete rest possible to the system. The food should consist principally of broths, stale or toasted bread and butter, weak tea or coffee, with an occasional egg, avoiding articles that ferment readily in the stomach; this includes the carbohydrates. Meat should be given only after the decline of the fever, and during the stage of convalescence. During the height of the disease, when there is severe local pain in the joints, he recommends the following combination applied locally.

℞ Olei gaultheriæ ..... ℥ii 8
Linimenti saponis q. s. ad ..... ℥ii 60

M. Ft. linimentum. Sig.: Apply locally to the joint by gentle rubbing; then envelop the joint in cotton, on the outside of which should be placed a flannel bandage.

Internally he recomends the following:

℞ Salacini ..... gr. x |65

M. Ft. chartula No. i. Sig.: One such powder to be given every hour or every two hours after the alimentary tract has been emptied by a cholagogue cathartic.

To support the heart and to counteract the anemia he recommends the following combination:

℞. Salacini ..... gr. x |65
Ferri citratis ..... ʒi 4|
Liquoris ammonii acetatis..... ʒiv 120|
Syrupi aurantii rubri q. s. ad..... ʒvi 180|

M. Ft. solutio. Sig.: One tablespoonful every three hours in a wineglassful of water.

The principles of the treatment of subacute rheumatism, which is simply a milder form of the acute, are similar.

In chronic rheumatism iodin is recommended, both as an external application and internally in the form of potassium, sodium or strontium iodid. When gouty conditions exist along with chronic rheumatism, the lithia preparations, especially the mineral waters containing lithia, are of service, combined with colchicum. In the chronic forms of rheumatism massage, electricity and dry heat are of great advantage in the treatment.

In subacute rheumatism the following local application, containing mercury and salicylic acid, is recommended by Stevens:

℞. Acidi salicylici..... gr. xxx 2|
Olei terebinthinæ ..... ʒii 8|
Ung. hydrargyri ..... ʒi 30|
Adipis lanæ hydrosi ..... ʒss 15|

M. Ft. unguentum. Sig.: Apply locally with friction night and morning.

Tampons in Chronic Constipation.

In considering the treatment of chronic constipation J. A. MacMillan, in *Medicine*, recommends rectal tampons in atonic constipation. This tampon should be made of absorbent cotton, cheese cloth or lamb's wool, and should be large enough to cause some distension of the bowel. It should be inserted through an ordinary proctoscope, and packed by means of a long forceps. The best location is at the recto-sigmoidal junction. A piece of string, of course, should be attached to the tampon, in order to facilitate its withdrawal after it has remained in place for from two to six hours. This treatment should be carried out every other day at first, and the interval between the treatments should be gradually lengthened as improvement takes place. The value of this treatment, according to the author, is due to the distension of the intestine. He records success in the majority of the cases in which he has tried it, although not in all of them. In most of these cases enemata and cathartics should be discontinued from the first, in order that regularity of stools may be established.

Multiple Warts.

Mantlin recommends the following combination in the treatment of multiple warts:

℞. Chloralis hydratis
Acidi acetici, ää..... ʒiss 6|
Acidi salicyli
Spiritus etheris, ää..... ʒi 4|
Collodii ..... ʒiv 15|

M. Sig.: Apply locally to the warts.

Administration of Belladonna.

In the treatment of acute keratitis Stevens recommends the following combination containing belladonna:

℞. Atropinæ sulph..... gr. i |06
Acidi borici..... gr. x |65
Aquæ dest. ..... ʒi 30|

M. Sig.: One or two drops to be instilled into the conjunctivæ twice a day.

In cases of pertussis the following combination is recommended:

℞. Tinct. belladonnæ..... ʒiss 6|
Glycerini ..... ʒii 8|
Aquæ menth. pip. q. s. ad..... ʒii 60|

M. Sig.: Thirty minims three times a day for a child of 3 years. The dose should be gradually increased until flushing of the face is induced.

In the treatment of hemorrhoids the following combination is useful:

℞. Ext. belladonnæ..... gr. x |65
Acidi tannici..... gr. vi |40
Hydrarg. chloridi mitis..... gr. xxx 1|30
Cocainæ hydrochlor..... gr. vi |40
Unguenti petrolati..... ʒi 30|

M. Ft. unguentum. Sig.: Wash the parts well and apply locally, night and morning.

Diarrheas in Children.

In outlining the course of treatment of diarrheas in children J. H. Buffum, in *Vermont Medical Monthly*, states that in a general way all the infectious diarrheas of childhood should be treated in a similar manner. The first essential is cleanliness, together with a cool, quiet room, and an abundance of fresh air. Early in the disease all food, even breast milk, should be withheld. During the first twenty-four hours nothing should be given except a little cold boiled water, with the addition rarely, in cases of great prostration, of a little brandy or whisky. In some cases the stomach may be so irritable as to me unable to retain any substance, consequently it may be necessary to give stimulants hypodermatically. If the case is seen sufficiently early, a dose of castor oil is recommended to clear the alimentary tract and, consequently, to shorten the course of the disease. When vomiting is severe, however, calomel in small doses is preferable. Irrigation of the bowels with a normal salt solution is of value, as it assists in the removal of toxic products from the intestines, and serves to quiet the thirst and to supply the necessary fluid to the tissues. The temperature of the fluid used should vary as indicated by the patient's condition. If the vomiting should continue beyond twenty-four hours, some authorities recommend washing out the stomach, and that this procedure be followed by administration of small doses of calomel. Hot packs are recommended in cases of prostration. In some cases the vomiting and purging may be so severe as to demand morphin and atropin hypodermically. When this is necessary he recommends morphin gr. 1/100, and atropin gr. 1/800, for a child 1 year of age. When in the judgment of the physician food can be borne by the stomach, Buffum recommends barley water or albumin water, together with beef, mutton or chicken broth, either administered alone or in combination. These feedings should be two or three hours apart, and in amount one-fourth to one-half the normal. Bismuth is recommended to allay the vomiting and the tenesmus, as it is both a sedative and an intestinal antiseptic. In children it should be given suspended in mucilage, or in older children it may be given in powder form. He does not think much of the intestinal antiseptics commonly recommended.

Medicolegal

Prior Operation No Defense for Unauthorized Dissection.

By section 309 of the New York Penal Code the unauthorized dissection of the body of a human being is a misdemeanor. The First Appellate Division of the Supreme Court of New York says that in the case of Jackson vs. Savage and others, alleged to be the officers, directors and trustees of a hospital, the gravamen of the complaint was the unauthorized dissection of a body, that of the plaintiff's wife, after death. The plaintiff must establish that essential fact. Having established it, it would be no answer to prove a prior operation during life. But if, as proof of dissection after death, he should introduce proof as to the condition of the body when received by him, it would be entirely competent to prove that the said condition was the result of an operation, and not of dissection. No averments in the answer would be required for the admission of such evidence. It would go to the destruction of the plaintiff's case, but in no sense would it be a defense of the cause of action set forth.

Requirements as to Insanity as a Defense to Crime.

The Supreme Court of Idaho says, in the homicide case of State vs. Wetter, that where the defense is insanity, it is always brought into the case by the defendant, and until he furnishes such evidences of insanity, at least sufficient to raise a question of doubt in the minds of the jurors, the prosecution may rest on the legal proposition that all men are supposed to be sane and legally responsible for their acts. The mere fact that insanity may exist in his family is not of itself sufficient to excuse the defendant from the responsibility he owes to his fellow-men, neither would it avail him if he were able to prove that he was "off" at times. The question to be

determined in cases of this character is, was the defendant at the time of the homicide so mentally unbalanced that he was not responsible to God or man for the commission of the act? If he mentally knew it was wrong to take the life of a human being, and under these conditions did commit the offense charged to him with malice, hatred or revenge, he is morally and legally responsible for the act and should suffer the consequences. He might at times be "a little off," and yet entirely responsible at the time of the commission of the crime charged to him. It might be that insanity existed in his family from its earliest history, and yet that would not excuse him. It would only be a circumstance in his favor, to be considered with other evidence as to his past history, his language, acts and conduct at the time of the homicide and prior thereto. In fact, anything in his past life showing any indication of insanity should and would be considered by the jury. It would be a very dangerous precedent to say that because insanity existed he should have immunity. Further than that, it should be considered in connection with other evidence in the case showing the condition of the defendant's mind at and about the time of the homicide. It is true it would be a strong circumstance to show that he was not so mentally and morally depraved as to take the life of two human beings and attempt the life of the third, but, nevertheless, it would still be incumbent on him to show that legal insanity, and not moral depravity, prompted the act. Human life is very sacred in the eyes of the law, and, whilst courts should always guard with the utmost diligence the rights of all parties charged with crime, at the same time they should be watchful of the rights of the people and not permit parties charged with homicide to go unpunished on the plea of insanity, unless there is a foundation in fact, reason, and justice to believe that the insanity was of such a character that the party pleading it was so mentally unbalanced that he was not responsible for his conduct.

Physician Not Guilty of Negligent Homicide.

The Court of Criminal Appeals of Texas reverses, in Gorden vs. State, a conviction of a physician of negligent homicide. It says that the Penal Code of that state provides that, "If any person in the performance of a lawful act shall, by negligence and carelessness, cause the death of another, he is guilty of negligent homicide of the first degree. . . . To constitute this offense there must be an apparent danger of causing the death of the person killed, or some other. The want of proper care and caution distinguishes this offense from excusable homicide. The degree of care and caution is such as a man of ordinary prudence would use under like circumstances." The test of the offense seems to be that there must be an apparent danger of causing death. Without this it would seem this offense could not exist, or would not be made out. And the test of care or caution is that which distinguishes it from excusable homicide.

In this case the accused, a physician, was called in consultation by the attending physician of a woman who was suffering from a cancerous affection of the womb. An examination was necessary, and for this purpose he was called in by the attending physician. In order to make this examination he inserted two fingers in the vagina to detect the cause of the trouble. There was some question as to what this trouble was, but the testimony showed that the woman had been suffering from this cancerous affection, and to such an extent that she was continually confined to her bed and bled to a considerable extent. The state's contention was that the accused with considerable degree of force undertook to pull and succeeded in pulling something from the womb or vagina, and that this caused great pain. Whatever this substance was, it was laid on the bed, and subsequently put back into the vagina. The evidence for the defense showed the insertion of the fingers seemed to have broken down the partition wall between the womb and the intestines—at least, this conclusion was deducible—and that an intestine protruded through the cavity and cut through the vagina, thus making its appearance, and that this was pushed back. At this point the theory of the state seemed to be that with the two fingers the accused pulled with such force on the womb as to tear loose and break down this partition wall, and by this means the intestines escaped, thus producing death. It was also contended by the state that this intestine was torn. But the physicians showed that this was not true, and could not have been true. In fact, it seemed to be practically demonstrated by the evidence of the physicians that the accused could not by the insertion of the two fingers into the vagina either have torn down the partition wall between the womb and the intestines, or break or tear in two the intestine after it protruded into the vagina.

Murder in second degree and manslaughter were submitted. But on each issue the jury found in favor of the accused, and convicted, as before stated, of negligent homicide. And the court does not believe that there was any evidence showing murder or manslaughter. Nor does it believe that there was evidence of sufficient character to show want of proper care. It says that the question of apparent danger under the statute under discussion is one that perhaps may be fraught with more or less trouble when applied to surgical operations. Just how far the surgeon would be responsible for negligent homicide, where there is an apparent danger of causing death of the person on whom the operation is performed, the court does not here propose to decide. Whatever that responsibility is, and at whatever point it may occur, there must be an apparent danger of causing the death of the person on whom the operation is performed; and, of course, this must be viewed in the light of proper care and caution. Many of the operations that are performed to relieve suffering humanity are necessarily fraught with more or less danger; and this is as well understood by the patient as by the operating surgeon. The court is of the opinion that the statute never intended to hold a surgeon liable for a homicide in cases of this character, unless there was a want of proper caution and care in the operation, however dangerous that operation may be. It may be proper, perhaps, to state that in some of the diseases for which these operations are performed for the relief of the patient the chances are more than equally balanced against life that death will result. Under this character of case there would be an apparent danger of causing death, but in such case, before the physician could be held responsible for the homicide, there must be shown a want of proper care and caution in performing the operation. Of course, however dangerous the operation may be and however many may be the chances of producing death, the physician could not be guilty, unless he acted without necessary caution and care. But the court does not think that question entered into this case, because it does not believe the facts justified the conclusion that there was a want of proper care.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia, Pa.

March 24.

1 *Malaria and the Anopheles Mosquito in Pennsylvania and in Texas. A. Woldert, Tyler, Texas.
2 *Men Having Ocular Movements Similar to Those Found Normally in the Ungulates. W. L. Phillips, Buffalo, N. Y.
3 Diagnosis in Incipient Pulmonary Tuberculosis. J. H. Elliott, Gravenhurst, Canada.
4 Etiology of the Hemorrhagic Diathesis. W. W. Carter, New York.
5 *Nose and Throat Diseases from a Constitutional Standpoint. J. L. Harkness, Philadelphia.
6 King's Evil and Its Cures. (To be concluded). J. Knott, Dublin, Ireland.

1. **Malaria.**—Woldert gives a detailed account of his personal observations made in Philadelphia and Texas regarding the anopheles mosquito. In Philadelphia he only once failed to find the malaria-carrying mosquito (invariably the *Anopheles quadrimaculata*) in the houses in which autochthonous cases of malarial fever prevailed. In Texas he has never failed to find them. He also found that the male mosquitoes became more numerous as frost came on, while the female gradually disappeared.

2. **Patients Having Ocular Movements of Ungulates.**—Phillips cites the history of two patients each presenting essentially the same conditions. They can see 20/20 with each eye separately and without glasses. It is possible for one patient to fix with both eyes, to turn either one out slowly and back again to double fixation without disturbance, while reading. He is also able to converge both eyes and to move his eyes simultaneously to extreme divergence. Besides this he can move them both to the extreme right or to the extreme left, or, by holding one in any position, from extreme divergence to extreme convergence, look at the side of his nose with the other. At no time since birth did he have double vision, and it is not produced even by the use of strong prisms. He finds that monocular vision is more restful than binocular vision, because of less head rotation. In each of these positions he has both eyes in focus, seeing with the one in front and the other at the side. The second patient could, with one eye, see to set type and at one side read proof with the other without the necessity of movements of the eyes.

5. **Nose and Throat and Constitutional Diseases.**—Harkness points out the intimate relation which exists between these organs and other organs of the body, as for instance, laryngitis, and pharyngitis of a rheumatic or lithemic origin. He also notes the relation between varicose veins of the leg and hypertrophied tonsils, and the effect of adenoids which cause gastric disturbances and *vice versa*, inanition in children, etc. He calls attention to the inflammatory conditions of the sinus (with consequent systemic effects) caused by a deflected septum, and shows the close relation existing between nasal conditions and the genitalia both in normal physiologic conditions and in disease.

Medical Record, New York.

March 24.

7 *Modern Treatment of Fractures. C. Beck, New York.
8 Uterus and Ovary of Neurasthenia. R. L. Dickinson, New York.
9 *Appendicitis. A. E. Isaacs, New York.
10 Filtration of Public Water Supplies. C. E. Gillette, U. S. A.
11 Public Water Filtration in Massachusetts. G. Harrington, Boston.

7. **Treatment of Fractures.**—Beck sums up his views as follows: In the absence of bone injury the proper treatment consists of massage, followed by immobilization. If there is a fissure or fracture, with no displacement, manipulations of the injured area must be avoided and immobilization in the most comfortable position applied. As a rule he has found a plaster-of-Paris dressing best for this purpose. After two or three weeks the dressing is removed and massage is begun. In about two weeks a plaster-of-Paris splint is applied, which the patient can take off and reapply. If there is any displacement reduction must be tried at once. In those cases in which reposition, even under anesthesia, can not be accomplished, the fragments must be exposed by the scalpel and brought into apposition. If there be any tendency to displacement a plaster-of-Paris dressing will ensure immobilization. If the fragments slip out easily it is safer to unite them with catgut, provided there is enough periosteum to be utilized for that purpose. Otherwise it is best to keep them together with a bronze wire suture.

9. **Appendicitis.**—Isaacs records his personal observations in a series of 147 consecutive appendectomies, with fifteen fatalities. In sixty clean cases only one patient, a man, died. This was the second attack of appendicitis, and the man had, in addition, a severe influenza. He developed a postoperative general peritonitis, cause unknown. In 62 local abscess cases four patients died, and in 25 general peritonitis cases ten patients died. In eight of these death was due practically to a continuation of the general sepsis. In about 68 of the 75 cases in which the onset of the attack was noted pain was the first symptom. It was a prominent symptom in 127 cases, and in the remaining 20 cases it could be brought out as an objective symptom. The next most frequent symptom noted was constipation, which was present in 103 cases. Vomiting was present in 100 cases, including almost all the acute and some of the subacute and interval cases. The diagnostic value of the various symptoms noted, the choice of time for operation and the method of operating are discussed fully. Isaacs found that, like pulse and temperature, the leucocyte count in itself is not a positive indication of the presence or absence of pus in any individual case, yet it may be of value as confirmatory evidence in the presence of other symptoms.

Boston Medical and Surgical Journal.

March 22.

12 *Cases Illustrating Cystoscopic Diagnosis. A. L. Chute, Boston.
13 *Cerebral Seizures with Suboccipital Pain. W. D. Ruston and E. E. Southard, Boston.
14 Gunshot Wounds of the Head and Spine. W. R. Weiser, Springfield, Mass.

12. **Cystoscopic Diagnosis.**—The value of the cystoscope as a diagnostic aid is subscribed to be Chute, who says that in cases of painless hematuria of renal origin cystoscopy is of particular value, allowing one to tell definitely which kidney the bleeding is from before the other localizing symptoms, such as pain, tenderness, and increased size, have appeared.

13. **Cerebral Seizures with Suboccipital Pain.**—A case suggesting the difficulty of diagnosis in cranial conditions anatomically simple, is reported by Ruston and Southard. A woman, 69 years of age, presented a series of cerebral seizures without focal signs, leading to a fatal issue in nineteen days. The seizures were ushered in by a boring occipital pain. The autopsy revealed several successive voluminous hemorrhages so situated in various parts of the cerebrum that the fibers of the projection system were largely spared. The small cerebral arteries, both of the cortical and the ganglionic systems, were beset with miliary aneurisms. Both vertebral arteries opposite the junction of bulb and cord showed gross aneurismal dilatation.

New York Medical Journal.

March 24.

15 *An Explanation of Suggestions in Therapeutics. B. F. Beebe, Cincinnati.
16 *Spirochæta Pallida in Syphilis, with Special Reference to Goldhorn's Rapid Staining Method. G. M. MacKee, New York.
17 *Treatment of Lateral Curvature of the Spine. A. R. Shands, Washington, D. C.
18 *Perforating Ulcers of the Duodenum. M. A. Austin, Anderson, Ind.
19 *Diagnostic Significance of Colic. G. P. LaRoque, Richmond, Va.
20 Prognosis in Tuberculosis of the Lungs. J. Walsh, Philadelphia.
21 *Unusual Case of Chlorosis. J. H. Barach, Pittsburg.
22 Eye Problems which the General Practitioner is Called on to Solve. R. J. Tivnen, Chicago.
23 Vincent's Angina. L. T. Royster, Norfolk, Va.

15. **Suggestion in Therapeutics.**—That psychic influence has not been used more by physicians in a legitimate manner; that the profession has permitted it to become the basis of many religious cults and has allowed it to be used by charlatans to the detriment of the people, Beebe thinks is peculiar. He thinks that every individual has an influence, to a greater or less degree, on some other person or persons, and that suggestion or psychic influence may be made to play an important rôle in the healing art. All physicians, consciously or unconsciously, he declares, influence their patients in a general way. Beebe urges that more attention be given to this matter and enters into an explanation of the *modus operandi* of this form of therapeutics.

16. **Spirochete in Syphilis.**—MacKee examined twelve cases of secondary syphilis with reference to the *Spirochæta pallida* and succeeded in finding this organism in eleven cases. He has not been able to demonstrate the spirochete in tertiary lesions or in specimens taken from lesions in psoriasis, lichen planus, eczema, lupus, varicose ulcers, seborrheic dermatitis and epithelioma.

17. **Treatment of Lateral Spinal Curvature.**—The method pursued by Shands is practically that advocated by R. W. Lovett with a variation in the application of the mechanical support. The patient is treated daily at the office for several months, and then three times a week. The treatment consists of a combination of dumb-bell exercises, stretching the spine in the jury mast, and hanging on a trapeze, bobbing up and

down over the end of a table, and the application of an intermittent corrective force in the Adams machine. The patients are allowed to remain in this machine under the greatest amount of force they can stand for from fifteen to twenty minutes. After the spine has been rendered as flexible as possible the patient is suspended in the jury mast and an impression is taken of the body from the collar bone well over the hip. A solid plaster-of-Paris bust is made from this jacket. The shape of the bust is improved by shaving away a certain amount of the plaster over the apex of the deformity of both the primary and compensating curves until the necessary correction has been made. The plaster-of-Paris corset is made from this bust. When the corset is laced on the patient as much constant pressure can be brought to bear at the seat of the deformity as the patient can stand.

18. **Perforating Ulcer of Duodenum.**—A case of acute ulceration of the duodenum, about two inches below the pylorus, is reported by Austin.

19. **Colic.**—As an aid to differentiating between colic and peritonitis LaRoque has worked out a very useful table in parallel columns. Because of the length of this table the reader is referred to the original article.

21. **Unusual Case of Chlorosis.**—The patient in this case of chlorosis reported by Barach was a boy, 10 years old, who, until the age of 2 years, was to all appearances perfectly healthy. For several years after that his health was not so good, and during that time he was troubled much with constipation. At 8 years of age he had a severe attack of whooping cough, lasting two months. Following that he was taken sick with what was probably a bronchopneumonia. The patient always lived in the country where he had plenty of fresh air, good food, and proper hygiene. His appetite, however, was capricious and at times uncontrollable. Barach thinks that the gastrointestinal system of the patient was at fault.

Lancet-Clinic, Cincinnati, Ohio.

March 24.

24 Combined Method of Treatment in the Arrest and Cure of Tuberculosis. H. B. Weaver, Asheville, N. C.
25 *Tuberculous in General Practice. H. A. Cowing, Muncie, Ind.
26 *Treatment of Tuberculous Pleurisy with Effusion. T. Potter, Indianapolis.

25-26.—See abstract in THE JOURNAL, Nov. 4, 1905, page 1436.

Journal of the Kansas Medical Society, Lawrence.

March.

27 *Cases Treated by the X-ray. J. N. Scott, Kansas City.
28 *Medical Legislation. C. C. Morrison, McCune, Kansas.
29 Quacks and Their Ways. J. B. Armstrong, Portis.
30 Glass Fitting. J. S. Wever, Kansas City.
31 La Grippe. J. R. Scott, Garnett, Kansas.

27. **Cases of Epithelioma Treated by the X-Ray.**—Scott reports six cases. The first patient had an epithelioma of the left side of the nose and cheek. When treatment was started the tumor was discharging considerable pus. After the conclusion of treatment the final result was only a little depression and contraction at the site of the cavity. The second patient had an epithelioma of the nose which also yielded rapidly under *x*-ray treatment. The third patient had an epithelioma of the upper eyelid. The growth began to diminish after the tenth treatment and the final result was a good one. The fourth patient had an epithelioma of the cheek which was entirely destroyed and the place healed over. A recurrent carcinoma of the breast also did well and an epithelioma extending from the external canthus of the eye to the ear yielded in four months.

28. **Medical Legislation.**—Morrison states that the trouble with medical legislation seems to be not so much in the matter of the law as in securing a board that will enforce the law. This can be done only by securing a board that will represent the best interests of the medical profession. Since this board is to represent the medical profession the members of that profession ought to have a voice in determining who is qualified to represent them. This is already being done in fifteen states and the District of Columbia, and in two states the boards are appointed by the medical societies and not by the governor. Morrison recommends that the statutes be amended so that the governor would be compelled to appoint the state board of medical examination and registration from recommendations made by the state medical societies.

American Journal of Surgery, New York.

March.

32 *An Operation for Cleft Palate. H. L. Smith, Nashua, N. H.
33 Keetley's Operation for Undescended Testis. W. M. Brickner, New York.
34 Surgical Treatment of Obstinate Dyspepsia. W. F. Campbell, Brooklyn, N. Y.
35 *Choice of Splints for Hip Disease. E. W. Ryerson, Chicago.
36 The Preliminary Training of a Surgeon. A. C. Bernays, St. Louis.
37 Plaster of Paris and How to Use It. (Continued). M. W. Ware, New York.
38 Local Anesthesia, with Especial Reference to Its Employment in Genitourinary Work. S. Wm. Schapira, New York.
39 Observations in the Ear Clinics of Berlin. C. H. May, New York.

32. **Operation for Cleft Palate.**—The procedure adopted by Smith has for its purpose not merely the closure of the cleft, but the actual production of a new muscular velum. The method has proved satisfactory in the case of ten patients operated on. From the anterior end of the cleft an incision is made, running outward and a little backward toward the alveolus, about one-third the distance to the teeth, when the direction of the incision is changed so that it is carried in a straight line nearly to the posterior extremity of the alveolar process, care being taken that there is left sufficient tissue for the blood supply of the flap. A corresponding incision having been made on the opposite side, the two flaps thus outlined are dissected up from the bone, the periosteum being included, and are freed completely from the posterior edge of the palate bones behind.

An incision is now made on each side, beginning at a point near the last molar, where the preceding incisions terminated, and running along in a curve, close to the roots of the teeth, sufficient space being left in front for the nourishment of the flaps. This cut will usually terminate near the lateral incisors. There are thus formed two triangular flaps, composed of mucous membrane and periosteum, which are carried into the median line and sutured together. The freshened edges of the velum are now sutured, and the posterior edges of the anterior flaps are sewn to the middle of the newly-formed velum. If deemed best the tension can still further be guarded against by extra sutures, placed in the velum at some distance from the edge. In case there seems danger that the palate may be carried too far forward during the process of repair through contraction of the flaps, it is quite feasible, Smith says, to pass a suture through the periosteum at the posterior edge of the palate bones, and thus anchor the velum at the desired point.

35. **Choice of Hip Splints.**—According to Ryerson, the ideal hip splint should have as a foundation a simple Thomas knee splint; to this should be added the Davis pelvic band to allow the use of a perineal strap on the well side if abduction is present. On this pelvic band an ordinary Thomas upright and thoracic band should be carried, the thoracic band being of the same design as the pelvic band. If, however, these pelvic and thoracic attachments be permanently fastened to the lower uprights it is difficult or impossible to apply the brace, since it involves dragging the patient through three hoops, set at different angles. To overcome this Ryerson makes use of another method. The upper end of the outside upright is carried an inch above the attachment of the Thomas ring and is ground accurately. A socket drilled to fit this post is then forged, with short anteroposterior wings to which the pelvic band is riveted at an angle of 20 degrees, to correspond with the average tilt of the pelvis. An upright from this pelvic band supports the thoracic band. This entire upper work constitutes a separate part of the brace which can easily be attached after the lower part has been applied. Ryerson has used this brace in a number of cases with great satisfaction.

St. Louis Courier of Medicine.

March.

40 Tuberculosis in St. Louis. G. Richter, St. Louis.
41 *Darier's Disease. H. W. Mook, St. Louis.
42 Splenectomy for Rupture of the Spleen. Dr. Freund, St. Louis.
43 Presentation of the Spleen. W. C. G. Kirchner, St. Louis.
44 Tumor of the Face. H. W. Mook, St. Louis.
45 Stab Wound of the Abdomen. Dr. Freund, St. Louis.

46 Typhoid Perforation. H. W. Soper, St. Louis.
47 Cause and Prevention of Postoperative Cystitis. F. J. Taussig, St. Louis.
48 Cerebellar Tumor of Syphilitic Origin. J. J. Singer, St. Louis.

41. Darier's Disease.—Mook reports a case of this rare affection for the purpose of showing the effect of the *x*-ray treatment on the disease. The result was remarkably beneficial. The secretions dried up promptly and in a few weeks the growths were markedly reduced in size and have continued to reduce until now they are one-fifth as large as when the treatment was begun. The treatment has also entirely relieved the pain and burning sensation which characterized the disease.

Journal of the Association of Military Surgeons of the United States, Carlisle, Pa.

March.

49 Medical and Surgical Observations During a Three Years' Tour of Duty in the Philippines. J. M. Banister, Ft. Riley, Kansas.
50 *Further Researches Into the Causes which Tend to Bring About Serious Accidents to Divers. L. Abbamondi, R. I. N.
51 *Sure Cure for Asthma. A. T. Short, U. S. A.
52 Service of Negroes in Hospital Corps Detachments. J. H. Ford, U. S. A.
53 Grayson-Graeme Hammock Mosquito Net. C. T. Grayson, U. S. A.

50. Causes of Accidents to Divers.—Abbamondi discusses those accidents which may happen after the return to the ordinary pressure and those which may happen before the diver's return to ordinary pressure, that is, when he is under water. He conducted a large number of experiments on chickens which showed the following: The rapid change of pressure and principally the rapid descent under several atmospheres may be dangerous in the exercise of the diver. The chickens subjected to a rapid compression (one second), almost constantly manifested in the experiment room morbid phenomena (somnolence, lethargy, difficulty of breathing, excitation, etc.) but they did not present them when the compression was slow (five minutes). The duration of the stay in the experiment room (five to twenty minutes) had not apparently a remarkably pernicious influence when the compression was gradual. Rapid decompression (one second) on the chickens subjected to a pressure of five atmospheres (equal to forty meters' depth in the sea), only produced mortal effect in the cases when it had been preceded by a rapid compression (one second), and it rarely produced them when it had been preceded by a slow compression (five minutes).

51. Cure for Asthma.—Short reports the curious case of a girl who was treated by her sister with what she stated to be a sure cure for asthma. Every form of treatment, including climatic, had been tried previously, but without avail. The sister went to the cemetery and selected some pieces of bone of the skull, which were dry and bleached, washed them and pulverized them in a mortar, added the powder to a quart bottle of water and gave the patient a teaspoonful three times daily. By the time half of the mixture had been taken the patient's condition was very much improved. Short saw the solution and observed the results of the treatment. About two and a half years have elapsed since then and there has been no recurrence of the asthma. Short concludes: "In what the potency of the treatment consisted I will not attempt to state, but I can vouch for the truth of these facts."

The American Journal of the Medical Sciences, Philadelphia.

March.

54 *Late Results of the Treatment of Inoperable Sarcoma by the Mixed Toxins of Erysipelas and Bacillus Prodigiosus. W. B. Coley, New York.
55 Treatment of Selected Cases of Cerebral-Spinal, and Peripheral Nerve Palsies and Athetosis by Nerve Transplantation. W. G. Spiller, C. H. Frazier and J. J. A. van Kaathoven, Philadelphia.
56 *Function of the Left Prefrontal Lobe. C. Phelps, New York.
57 *Double Ego. A. Gordon, Philadelphia.
58 Three Cases of Traumatic Brown-Séquard Paralysis. J. Grinker, Chicago.
59 Hemophilia in the Newly Born. R. C. Larrabee, Boston.
60 Pulmonary Gangrene Following Foreign Bodies in the Bronchi. T. W. Clarke and D. Marine, Cleveland, Ohio.
61 *Rhythmic Lateral Displacement of the Heart as a Sign of Unilateral Pleuritic Exudate. C. L. Greene, St. Paul, Minn.
62 *Orthostatic Albuminuria. O. A. Kennedy, Louisville, Ky.
63 *Aspiration in Acute Articular Rheumatism. F. J. B. Cordeiro, U. S. N.
64 Rationale of the Roentgen Ray. J. W. Hunter, Jr., Norfolk, Va.

54. Mixed Toxins in Inoperable Sarcoma.—Coley reviews the history of the mixed treatment of inoperable sarcoma and reports 11 cases of sarcoma and carcinoma which show that the toxins have a marked inhibitory action, even in carcinoma; and although this is rarely curative, he believes the results sufficiently good to justify the routine use of the toxins after all primary operations for carcinoma, as well as for sarcoma. Of 36 cases which may be classed as successful in that the tumor disappeared under the injections with the mixed toxins, the type of the neoplasm was as follows: Round-celled, 13; spindle-celled, 16; mixed-celled, 2; epithelioma, 1; chondrosarcoma, 1. In three cases no microscopic examination was made, but the clinical appearance, together with the history of recurrence, left practically no room for doubt as to the diagnosis. The results in these cases, thus far, have been as follows: Well less than a year, 5; well from one to two years, 4; well from two to four years, 3; well from three to five years, 5; well from five to thirteen years, 21. Ten patients are well over ten years. In five cases a recurrence took place and finally proved fatal. In one of these recurrent cases the patient had remained well eight years; in one, three and one-fourth years; in one, two and a half years; in one, seven months, and in one six months.

From published reports and personal communications from other surgeons who have tried the mixed toxins in inoperable cases Coley tabulates 60 cases of complete or partial success. In all of these cases the clinical diagnosis was confirmed by a number of surgeons and the patients were considered hopeless from an operative standpoint. Twenty-seven patients were alive and well from three to twelve years after treatment. In nine of Coley's successful cases the sarcoma originated in the bone; in twenty-two in the external soft parts; five were intra-abdominal growths. Of the successful cases in the hands of other surgeons twenty occurred in the bones, nineteen were intra-abdominal growths, and fourteen occurred in the soft parts. Coley has also collected twelve cases of sarcoma of the extremities in which the use of the mixed toxins has rendered amputation unnecessary and the limb was saved. In eight of these cases the sarcoma was of the round-celled variety; in two, of the spindle-celled variety, and in two no microscopic examination was made, but amputation was strongly advised by a prominent surgeon. Eight of these patients were alive and well and free from recurrence from three to six years later.

56. Function of Prefrontal Lobe.—Phelps cites 11 cases of cerebral injury, in which the distinctive lesion was found to be frontal, which he believes strengthens the statement made by him in 1894 that the seat of control for the intellectual faculties resides exclusively in the left frontal lobe.

57. Double Ego.—The case reported by Gordon is unusual and probably unique as an example of the co-existence of two egos at the same time. The patient is absolutely convinced that he is composed of two beings: number 1 and number 2. The latter is inimical to the first in every respect; suggests wrong acts, interferes with his life, even dictates to him bad language when he talks to others; briefly, number 2 is always for "the bad part of life." It is constantly in him, can not be separated from him, controls his actions, and never leaves him for a moment. The patient has a full knowledge of right and wrong and resists, therefore, the evil influence of number 2. Most of the time he overcomes it, but sometimes number 2 overpowers number 1 and takes full possession of the latter. When number 1 loses the battle the patient enters into a state of unconsciousness. In his judgment number 2 is not a material being; he does not see or hear it, he only feels its presence. The patient is intelligent, industrious, attends to his work correctly, never makes mistakes. He is an engineer, does responsible work, and never fails in doing his duties. His previous history is negative. Gordon classes this as a case of epileptic psychosis.

61. A Sign of Unilateral Pleuritic Exudate.—More extended observation has convinced Greene of the correctness of a statement made by him in 1902 that a rhythmic lateral displacement of the heart is a valuable sign of unilateral pleuritic

exudate. Such movement is most marked in medium-sized effusions. The heart approaches the affected side in inspiration and moves outward in expiration. The extent of movement is variable, but often amounts to two inches.

It may be measured by fluoroscopic examination, auscultatory percussion, or in the case of right-sided effusions by simple deep percussion of the free cardiac border, or in some instances by mere inspection of the apex beat. Deep breathing, and especially forced expiration, are essential to the success of the maneuver, and to obtain this morphin must sometimes be administered. Marked rhythmic lateral movement has not been found in pneumonia, tuberculous infiltrations of the lung, malignant disease of the pleura or lung, or in subdiaphragmatic abscess.

62. Orthostatic Albuminuria.—In this case the symptoms appeared to indicate that the albuminuria began and continued for an indefinite period (more than two years) without the existence of renal inflammation or organic lesions, but that the long continued irritation incident to the disordered condition, giving rise to albuminuria, finally resulted in a nephritis. The absence of pathologic changes in the kidneys for at least the first two years is suggested by the absence of tube casts and the orthostatic form of the albuminuria. Kennedy describes in detail the tests employed and the special experiments made in this case.

63. Aspiration in Acute Articular Rheumatism.—It has been Cordeiro's custom to regard and to treat acute rheumatism as a surgical and not as a medical disease. Where there is enough fluid to warrant aspiration it is his routine practice to resort to that procedure. He has noticed that an aspirated joint has never been reattacked during the same or a subsequent illness. In one case the fluid removed was examined. A number of bodies which seemed to be zoöglear masses were observed and these were crowded with extremely minute round bodies which did not stain readily. Cordeiro thinks that if the specific micro-organism of rheumatism is eventually found it will be in the joint fluid.

American Journal of Obstetrics, New York.

March.

65 Associated Nervous Conditions in Gynecology, with Especial Reference to the Climacterium and Allied States. (To be continued). S. W. Bandler, New York.
66 Evolution in Axis-Traction. A. C. Jacobson, Brooklyn, N. Y.
67 *Pseudomyxoma Peritonei. B. C. Hirst, Philadelphia.
68 *Appendicitis Complicating Pregnancy and Parturition. E. P. Davis, Philadelphia.
69 *Appendicitis Complicating Pregnancy. M. W. Myer, Columbia, Mo.
70 Artificial Dilatation of the Pregnant and Parturient Uterus. C. E. Ziegler, Pittsburg.
71 Prophylaxis of Abdominal Adhesions. C. G. Cumston, Boston.
72 *Anatomy of Hernia of the Female Pelvic Floor. W. Keiller, Galveston, Texas.
73 Toxemia of Pregnancy. I. Strauss, New York.
74 Etiology of Cancer of the Pelvic Organs. H. N. Vineberg, New York.
75 Nature of Cancer. B. H. Wells, New York.

67. Pseudomyxoma Peritonei.—The most curious feature of Hirst's case was a complete inversion of the nullipara's vagina and the enormous distension of the pouch thus formed, evidently by the weight of the free pseudo-mucin in the pelvic cavity (about fifteen pounds). There was a semi-collapsed ovarian cyst on the left side with an opening on its posterior superior surface. Two typical daughter cysts, the size of a cherry, were found in the wall of the ileum, one exhibiting a spontaneous perforation of its wall. The collapsed ovarian tumor, the free pseudo-mucin, and the daughter cysts were removed; the uterus, which had prolapsed, was suspended.

68. Appendicitis Complicating Pregnancy.—Davis calls attention to the fact that appendicitis is a serious complication of pregnacy, and that adhesions following appendicitis may bring discomfort and danger to a patient who becomes pregnant after she has recovered from disease of the appendix. He also urges for consideration the proposition that in view of the serious consequences which follow appendicitis in pregnant women, the appendix be removed as soon as inflammation attacking that organ can be diagnosticated. Remembering the impossibility of differentiating between inflammation of the right Fallopian tube and ovary and inflammation of the appendix complicating pregnancy, operation should be done without waiting to make a positive diagnosis that the tube is inflamed and that the appendix is not affected, or that the contrary is the case. Six cases in point are reported.

69. Id.—Of the 143 cases collected by Myer, 52 occurred during pregnancy and the patients were not operated on; 69 patients were operated on during pregnancy, while 22 cases, both operative and non-operative, occurred during the puerperium. He concludes that pregnancy does not predispose to the development of an appendicitis. If appendicitis has previously existed there is usually a recurrence of the attack during pregnancy, and it runs a more grave course, as evidenced by perforation and abscess in 50 per cent. of the cases. The uterus, adnexa, and uterine contents may readily become infected during pregnancy from an appendiceal abscess. The same surgical principles are applicable when the complication of pregancy exists as in uncomplicated cases. Operation itself does not disturb pregnancy. Every care should be employed not to disturb the pregnant uterus during operation, for the prognosis improves with the amount of time which elapses between the operation and the abortion or labor.

72. **Hernia of Female Pelvic Floor.**—In the case reported by Keiller the whole vagina was everted, the infravaginal cervix uteri and its os, occupying very nearly the center of the tumor. There was no marked erosion of the vaginal mucosa. The hernia contained two-thirds of the contracted bladder, the lower three inches of the uterus, and half of the urethra; the whole vagina, which was completely everted, at least four inches of a much-elongated uterus, the canal, and 5 cm. of rectum, as well as the uterovesical and rectovaginal pouches of peritoneum. The fundus of the uterus was only slightly lower than normal.

Journal of Nervous and Mental Disease, New York.

March.

76 *Thyroid Metastasis to the Spine. F. X. Dercum, Philadelphia.
77 Sarcoma of the Cerebellum; Sarcomatous Infiltration of the Spinal Pia. F. X. Dercum, Philadelphia.
78 Brown-Sequard Paralysis, Due to a Fall on the Head; Operation; Recovery. W. C. Krauss, Buffalo, N. Y.
79 Case of Ascending Unilateral Paralysis. L. Newmark, San Francisco.
80 Diffuse Gliosis of the Cerebral White Matter in a Child. W. N. Bullard, and E. E. Southard, Boston.

76. Thyroid Metastasis to the Spine.—The patient whose case is reported by Dercum suffered from a goiter for some years. This gradually became so large that the gland was removed. The patient made a good recovery. One year after the operation she began to suffer from pains, sharp and shooting in character, distributed generally throughout the body. These pains were followed by a gradual and progressive wasting of the muscles, with contraction of the extremities. The patient died from edema of the lungs. On opening the spinal canal and removing the cord a tumor was found involving the fourth and fifth cervical vertebræ, pressing on the cord and involving the dura mater. Involving the second lumbar vertebra there was a smaller tumor without adhesions to the dura. The tumor was made up of thyroid tissue. All the sections revealed the aveoli of the thyroid gland, some of them large and some of them medium-sized; others very small. All revealed the typical structure of these aveoli lined by a single row of cubical epithelium and all were filled with the characteristic colloid material. The dura was much thickened and tracts of fibrous tissue could be seen leaving the dura and spreading among the acini. Sections of the cord revealed marked areas of degeneration.

Detroit Medical Journal.

February.

81 Strain as a Factor in Cardio-Aortic Lesions. (To be concluded.) H. B. Anderson, Toronto.
82 Treatment of Chorea. D. Inglis, Detroit.
83 The Dose Problem. W. L. Waugh, Chicago.
84 Repair of Cervical Lacerations Without Stitches. M. R. Van Baalen, Detroit.
84½ Case of Acute Mastoiditis. E. J. Bernstein, Kalamazoo.

Colorado Medicine, Denver.

February.

85 Early Days in the Practice of Medicine in Colorado. H. W. Allen, Boulder.
86 Cancer of Lip and Face. W. W. Grant, Denver.
87 Asthma. J. R. Arnell, Denver.

Cleveland Medical Journal.

February.

88 Chloroform Discovered by Dr. Samuel Guthrie, an American Physician. A. G. Hart, Cleveland.
89 Function of Therapeutic Exercises in Lateral Curvature. H. O. Feiss, Cleveland.
90 Management of Occipito-Posterior Positions. A. H. Bill, Cleveland.

Chicago Medical Recorder.

February.

91 Ignorance as a Cause of Disease and Disaster. D. Lewis, Chicago.
92 Empyema. C. J. Drueck, Chicago.
93 Differential Diagnosis Between Some of the Serious Sequelæ of Purulent Otitis Media. F. Allport, Chicago.
94 Medicine. M. J. Seifert, Chicago.
95 Treatment of Stammering. E. L. Kenyon, Chicago.

Alienist and Neurologist, St. Louis, Mo.

February.

96 Genius and Degeneration. H. E. Lewis, New York.
97 Further Views of the Virile Reflex. C. H. Hughes, St. Louis.
98 Relations Between Physical Diseases and Mental Disorders. L. W. Weber.
99 Mixoscopic Adolescent Survivals in Art, Literature and Pseudo-Ethics. (Continued.) J. G. Kiernan, Chicago.
100 Erotic Symbolism. (To be continued). H. Ellis, Cornwall, England.
101 Rodonaigia Phalanx or Phalanges or Finger Erethromelalgia with a Theory of Causation. C. H. Hughes, St. Louis.

Journal of the South Carolina Medical Association, Charleston.

February 21.

102 Remarks on Gallstones. L. Peters, Columbia, S. C.
103 Acute Bronchopneumonia. J. F. Williams, Roebuck, S. C.
104 Puerperal Fever. C. C. Gambrell, Abbeville.
105 Diseases of the Heart. J. B. Britt, Troy.
106 Acute Glossitis. R. G. Hamilton, Converse.
107 Aphorisms. J. L. Dawson, Charleston.

Fort Wayne Medical Journal-Magazine.

February.

108 Value of Drugs Given Internally in Gonorrhea. E. E. Morgan, Ft. Wayne.
109 Treatment of Chronic Posterior Urethritis. B. Van Swearingen, Ft. Wayne.
110 Etiology and Symptomatology of Arteriosclerosis. A. P. Buchman, Ft. Wayne.

Journal of the Mississippi State Medical Association, Vicksburg.

March.

111 President's Address Clarksdale and Six Counties Medical Society, Duties of the Physician. S. W. Glass, Dublin.
112 Our Experiences and Our Failures. J. J. Slack, Friars Point.
113 Malaria. H. X. Richardson, Lyman.
114 Tubal Pregnancy. T. M. Dye, Sherard.

Journal of Cutaneous Diseases, New York.

March.

115 Additional Observations on the Use of Roentgen Rays in Dermatology. H. W. Stelwagon, Philadelphia.
116 Classification of Bullous Diseases. J. T. Bowen, Boston.
117 Bullous Affections and Their Classification. E. B. Bronson, New York.
118 Warty Growths, Callosities and Hyperidrosis and Their Relation to Malpositions of the Feet. W. A. Hardaway and N. Allison, St. Louis.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal.

March 10.

1 Midwifery of the Present Day. P. Horrocks.
2 *Necessity for Immediate Diagnosis in Cancer of Uterus. T. Wilson.
3 *Enucleation of Fibro-Myoma of Uterus During Pregnancy. J. Stewart.
4 Occipito-Posterior Presentation. G. Geddes.
5 Ophthalmology; Past and Present. S. Snell.
6 Rhythmical Variations in Cerebrospinal Pressure. E. G. Kensington.
7 *Atrophy of the Phalanges of the Hands with Joint Lesions. B. Watson.
8 Deformity of Lower Limbs. E. F. G. Tucker.

2. **Cancer of Uterus.**—According to Wilson, in one out of every four women who die of malignant disease the uterus is the organ affected. Until Dec. 31, 1905, he had performed 48 vaginal hysterectomies for cancer of the uterus, with one death following the operation. In 40 of these cases, including the fatal one, the operation was done for cervical cancer, so that the immediate mortality of the operation for this variety works out at 2.5 per cent. Reckoning that a term of five years' freedom from recurrence is equivalent to a definite cure of the disease, vaginal hysterectomy leads to the definite cure of one-third of the cases in which it is employed. Wilson states that if the methods of examination at our disposal are given a chance, cancer of the uterus can be diagnosed at its very beginning, and for some time after its commencement the disease can be cured in a large proportion of cases by the aid of surgery. The result of the examinations must be conclusive. When any doubt exists, immediate recourse should be had to the microscopic examination of portions of tissue removed in a systematic manner for the purpose. When the diagnosis is made no delay should be permitted in making the necessary arrangements for operation. The goal to be desired, says Wilson, is diagnosis within three days of the appearance of the first suspicious symptom and operation within a week after the diagnosis. The early symptoms and diagnostic methods are described in detail.

3. **Enucleation of Fibromyoma During Pregnancy.**—Stewart reports a case of sessile fibromyoma attached to the left of the fundus uteri which he removed during the sixth month of pregnancy. The patient had no uterine contractions or pain of any moment, although there was a considerable injury to the wall of the uterus, neither were the fetal movements interfered with in any way. Stewart attributes this to the fact that no antiseptics were used.

7. **Atrophy of Phalanges.**—The feature of the case reported by Watson is the unique condition of the patient's hands. The skiagraph shows that the phalanges of both hands have been almost completely absorbed. The fingers, in consequence, have shortened materially, and as the skin surface has not lessened appreciably in extent, a peculiar appearance is presented which Watson calls a telescoping of the digits. The skin of the whole body is somewhat bronzed. The power to move the fingers is lost, and there is considerable limitation of the movement of the wrists. The knees are almost completely fixed in the semiflexed position, and when moved crepitation can be felt. The shape of the joints is not greatly affected and no osteophytes are perceptible. No other joints are involved. This condition followed an attack of acute rheumatism. The patient's general health is not affected.

The Lancet, London.

March 10.

9 Phlebitis and Thrombosis. W. Haward.
10 Epidemic Disease in England—The Evidence of Variability and of Persistency of Type. W. H. Hamer.
11 Spirochæta Pallida (Spironema Pallidum) in Syphilis. (To be continued). T. Sheenan.
12 *Spirochete Found in Syphilitic Lesions. G. M. O. Richards and L. Hunt.
13 *Observations on the Animal Reactions of the Spirochete of the African Tick Fever. A. Breinl, and A. Kinghorn.
14 *Presence of the Spirochæta Pallida in Syphilitic Lesions. L. S. Dudgeon.
15 Case of Impotence; a Problem in Diagnosis. C. A. Mercier.

12. **Spirochete of Syphilis.**—Richardson and Hunt believe that the *Spirochæta pallida* is the real specific organism of syphilis, and that the organisms described as *Spirochæta refringens* are polymorphic forms of the same organism, occurring only on the surface where the disease is manifested by its external lesions. They state that they have never yet seen *Spirochæta pallida* in the primary lesion without seeing many more refringens, hence they regard this organism as diagnostic of *Spirochæta pallida*. All their attempts to grow the organism in broth, agar, or blood serum from the blood of patients in which they have previously found the spirochete have failed.

13. **Spirochete of African Tick Fever.**—Breinl and Kinghorn have been able to infect with the spirochete of African tick fever in addition to monkeys, a horse, a dog, rabbits, guinea-pigs, rats and mice. The rabbits, rats, mice and some of the guinea-pigs have succumbed to the infection. These experiments lead to the conclusion that the spirochete of the African tick fever differs from the *Spirochæta obermeieri*. While the animal reactions are different from those of the *Spirochæta obermeieri* the pathologic anatomic lesions are the same as those described in human beings who have succumbed to the infection by *Spirochæta obermeieri*.

14. **Spirochete of Syphilis.**—Dudgeon records observations made on twenty cases of primary, secondary, tertiary and congenital syphilis. In every case the surface of the syphilitic lesion was cleansed carefully and then firm pressure was applied for

a short space of time until a small quantity of serum was evacuated. The spirochete was found in six cases of primary syphilis, in two of secondary syphilis, in one case of tertiary syphilis and in three cases of congenital syphilis. Dudgeon says that whether or not these changes are dependent on the *Spirochæta pallida* requires the necessary proof before it can be accepted.

Journal of the Royal Army Medical Corps, London.

February.

16 *Methods Employed in the Campaigns Against Typhoid Fever in Germany. E. D. W. Creig.
17 Bubonic Plague in Cape Colony. J. A. Mitchell.
18 *Rapid Means of Sterilizing Water for Troops by Using "Thermit" as Fuel. H. C. Ross, Royal Navy.
19 Notes on the Health of Europeans and Natives in Peking. F. E. Gunter, R.A.M.C.
20 *New Method of Charging Bunsen Batteries for X-Ray Work. M. C. Beatty, R.A.M.C.
21 Kala-Azar. J. C. McKenzie, R.A.M.C.

16.—See THE JOURNAL, March 3, 1906, page 673.

18. **Rapid Sterilization of Water.**—Ross proposes to sterilize water by using thermit, a powder of blackish gray consistency composed of a mixture of aluminum and either ferric or ferrous oxid. The thermit process produces about 4,400 degrees of heat in thirty seconds. When a small quantity of a reagent such as the peroxid of barium or chromium is placed on the surface of the mixture and a match is applied combustion takes place, together with the liberation of free iron in a molten condition and the production of intense heat. About half the thermit turns into iron and the other half into what is known as slag, which is composed of oxid of aluminum. The method and apparatus employed by Ross for sterilizing the water are described in detail.

20. **Charging Bunsen Batteries for X-Ray Work.**—Beatty washes two or three ounces of crystals of potassium bichromate in water. They are then drained and placed in a glass funnel. Concentrated nitric acid is filtered through these crystals (which after washing and drying can be used again) into porous pots. The containing jar is charged with a saturated solution of ammonium chlorid to the height of the nitric acid. This battery can be kept in the *x*-ray room as there is a total absence of nitrous fumes until the acid is nearly exhausted, which will not be for about two hours after starting. The consumption of zinc is reduced to a minimum and there is no need for the tedious process of amalgamation. The porous pots last much longer and the method is cheaper because there is not the constant outlay for mercury and sulphuric acid. After use the acid should be replaced in loosely stoppered bottles and used again until a total of about one and three-quarters hours of active work has been taken from it, after which it should be thrown away. The ammonium chlorid solution can be kept indefinitely, a few crystals being added occasionally to keep it saturated. The zinc, porous pots and carbon blocks are washed in warm water and allowed to dry. The volts and amperes of the battery remain the same as in the common method.

Journal of Tropical Medicine, London.

March 1.

22 Tick Fever. P. Ross.

Glasgow Medical Journal.

March.

23 Heredity and Disease. R. Stockmann.
24 Round-cell Sarcoma of the Brain Situated in the Frontal Lobes, and Beginning with Mental Symptoms. J. L. Steven.
25 *Case of Typhoidal Cholecystitis. J. W. Findlay and R. M. Buchanan.

25. **Typhoidal Cholecystitis.**—Findlay and Buchanan report a case of typhoidal cholecystitis in which the usual symptoms of typhoid were absent, and in which the *Bacillus typhosus* was isolated during life from the cystic and intestinal contents.

Semaine Médicale, Paris.

26 (XXVI, No. 8.) *Des abcès sous-phréniques (under the diaphragm). P. Carnot.
27 Organisation du service sanitaire de l'Ile de Cuba.
28 (No. 9.) *Les formes frustes de l'iléus. F. Lejars.

26. **Subphrenic Abscesses.**—Treatment is exclusively surgical, but Carnot gives indications so that the physician can diagnose a subphrenic abscess early and thus guide the surgeon in his intervention. He also discusses the etiology and ways in which the abscess can develop.

28. **Incomplete Ileus.**—The cases of incomplete, abortive ileus to which Lejars refers may be the result of other intra-abdominal lesions, in which case they may mask the primary trouble; or they may be consecutive to mechanical obstruction of the intestine, or they may be of paralytic or spasmodic origin. He discusses each of these three types, giving the history and citing examples of each. In conclusion, he emphasizes the fact that notwithstanding their apparent harmlessness and their intermissions of subsidence, they frequently prove fatal, as they entail death from stercoremia. This condition should always cause alarm and command the strictest therapeutic vigilance. The absorption of toxins continues and the poisoning persists so long as normal function is not restored, the meteorism entirely subsided, circulation through the intestine freely re-established and peristalsis restored. A precise, detailed diagnosis should not be waited for. It is generally impossible, as there is no specially dilated loop or local resistance such as are observed in complete, classic ileus. On the contrary, there is uniform and total meteorism and a generalized paralytic distention of the bowel. Not every case requires surgical interference, but long waiting and waste of time are as pernicious in the incomplete as in the complete forms of ileus. The danger is not so urgent, but it is none the less continuous and progressive. Morphin and atropin are liable to allow the favorable moment for intervention to pass unobserved. Lavage of the stomach and high injections into the intestines are useful measures, but should not be kept up too long. The best medical measure is electricity. Applied internally to the bowels, it has a peculiarly effectual action in these cases of dragging, abortive ileus, which always are due in some measure to functional disturbance in the intestinal musculature. It is more effective the earlier it is applied, and has proved very successful in his hands. He advises using electricity as a regular routine procedure from the first, not waiting until it is the last resort before operative interference. Paresis of the bowel and the resulting passive distension play a large part in the development of the ileus, and they are liable to yield to electricity. If this fails and if the intestine remains uniformly distended and inert, surgical intervention should follow at once, without waiting for signs of general intoxication. An early laparotomy meets with good conditions if done before the intestine becomes merely an inert canal, incapable of function, and before the stercoremia becomes irremediable.

Beiträge z. klin. Chirurgie, von Bruns', Tübingen.

Last indexed, page 993.

29 (XLVII, No. 2.) Die Ergebnisse von 241 Peritonitis-Operationen. W. Noetzel.
30 Ueber subcutane Nierenverletzungen, insbes. über traumatische paranephritische Ergüsse und traumatische Uronephrosen (injuries of kidney). F. A. Suter.
31 Operative Behandlung von Zwerchfellwunden (injury of diaphragm). Id.
32 Zur Klinik und Chirurgie des Hirn-Abscesses (of brain). W. Blbrowicz.
33 Zur operativen Behandlung des schmerzenden Hohlfusses (painful instep). F. Wette.
34 Ueber die chronische Entzündung der Mundspeicheldrüse und ihrer Ausführungsgänge (inflammation of salivary gland and its outlet). F. Krolss.
35 (No. 3, Dedicated to Garré.) Changes in Bony Framework of Foot After Removal of Talus.—Veränderungen am Fussskelett nach Talusexstirpation. R. Stich (Königsberg).
36 *Ueber ektopische Inguinal-Hernien. A. Ebner (Ib.)
37 *Heilung einer Nieren-Fistel nach Pyonephrotomie in der Gravidität durch Ureteren-Katheterismus. T. Cohn.
38 Psoas-Hematoma bei Hemophilie. H. Moses.
39 *Ueber operative Verletzungen des Ductus thoracicus (injury during operation). F. Unterberger.
40 Fall von Atlas-Luxation mit Abbruch des Zahnfortsatzes des Epistropheus. M. Romm.
41 *Zur Kasuistik der inneren Hernien speciell der Hernia foraminis Winslowii. Delkeskamp.
42 *Zur Chirurgie der Gallenwege (of biliary passages). A., Stieda.
43 *Zur Behandlung der Kniegelenks-Tuberkulose (of knee). M. Draudt.
44 Zur Pathogenese der subcutanen Darm-Rupturen (of intestines). Bunge.
45 Zur Technik der Erziehung tragfähiger Diaphysen-Stumpfe ohne Osteoplastik. Id.
46 Ueber Gefässgeräusche in der rechten Hälfte des Epigastriums (vascular murmurs in right half of epigastrium). F. Müller.
47 *Zur Frage der Osteotomie des Genu valgum adolescentium. Paetzold.

36. **Ectopic Inguinal Hernia.**—Ebner has found 23 cases of this condition recorded in the literature and reports a case in which he operated. He refers to an article published in this country which mentions 27 cases.

37. **Cure of Fistula into the Kidney.**—In Cohn's case the fistula was a sequel of pyonephrotomy. The patient was a woman of 26, with idiopathic, acute pyelitis at the third month of pregnancy. About ten liters of thin, fetid pus were evacuated from the kidney by the nephrotomy and the pregnancy proceeded normally to delivery, though the kidney fistula persisted. After her recovery, the ureter proving to be impermeable, it was catheterized at intervals of three days for a few times. The fistula was then artificially closed.

39. **Operative Injury of Thoracic Duct.**—Unterberger describes a case in which the subclavian vein and thoracic duct were injured during an operation. The latter was ligated and the former sutured. There was slight chylorrhea for a time, but conditions were soon restored to normal. He summarizes 29 cases of operative injury of the thoracic duct, which he has been able to collect from the literature. The oozing out of a milky fluid is the one constant sign of such an injury, he says, and ligature is the best way to treat it.

41. **Internal Hernia.**—Delkeskamp relates the particulars of a case of intra-abdominal hernia in the foramen of Winslow. The patient was a healthy woman of 22. Immediately after a normal childbirth signs of intestinal obstruction developed, the symptoms growing progressively worse until the abdomen was opened seven days after delivery. Conditions were righted without much difficulty, curing all symptoms at once.

42. **Surgery of the Biliary Passages.**—In this long article Stieda reviews the 140 operations on the biliary passages done by Garré during the last decade. He first gives Garré's rules governing surgical intervention, and then summarizes the details of the various groups of cases. In conclusion, he remarks that whether cystotomy or cystectomy is indicated depends on the contents of the gall bladder and the findings in the gall bladder and cystic duct during operations for gallstones. Cystostomy is a compromise operation. It may take the place of cystotomy in case it is desired to retain the gall bladder, but there is no certainty that all the stones have been removed, especially when the concrements are exceptionally numerous. Cystotomy should be done instead of cystectomy, when there are serious technical reasons against the latter or when the general condition of the patient is too bad to allow it. In the cases without stone formation, treatment should be as radical as possible. In case of carcinoma of the gall bladder a palliative cystectomy may be justified under certain circumstances. The rare cases of carcinoma in the region of the common bile duct offer favorable chances for a radical cure.

43. **Treatment of Tuberculous Processes in the Knee.**—Draudt states that out of 252 cases of tuberculous processes in the knee, treated by operative measures at Königsberg, the ultimate outcome has been a success in 92.3 per cent., with only 7.7 per cent. bad results. The limb was not shortened in more than 17 per cent., and only for 1 cm. in over 15 per cent.; for 2 cm. in nearly 24 per cent., and for 3 cm. in more than 16 per cent.

47. **Osteotomy for Genu Valgum in Young Adults.**—Paetzold has been examining recently 47 patients operated on at Königsberg for this condition. He discusses the technic and results, proclaiming that osteotomy with hammer and chisel is the simplest, safest and most rational mode of treatment. It is important to determine whether the femur or the tibia is responsible, and radiography alone will decide the question and show which bone is to be operated on. The ultimate results in his cases demonstrate that the course of the line of division through the joint is the criterion. The aim should be to maintain or to restore a perpendicular line of division (Gelenkspalte). If this line of division slopes from the side above to the middle below, then the curvature is in the femur, and femur-osteotomy will produce a perpendicular line of division. If the line of division is straight to start with, then the tibia is in fault, and tibia-osteotomy alone is able to insure a straight, useful leg. If the curvature affects both of the bones, then the tibia should be operated on in mild cases or both bones in the severer ones. The main point is to keep the line of division perpendicular.

Berliner klinische Wochenschrift.

48 (XLIII, No. 6.) *Ueber chronische progressive Chorea (Huntington) in jugendlichen Alter. F. Lange.
49 Utilization of Various Kinds of Sugars by Diabetics.—Ausnutzung der verschiedenen Zuckerarten bei Diabetikern. V. Pertiti (Naples).
50 Zur Typhus-Diagnose mittels des Typhus-Diagnostikums von Ficker. M. Meyerhoff.
51 *Die physikalische Behandlung der habituellen Obstipation. E. Tobias.
52 *Die Endoskopie der Harnröhre (of urethra). H. Goldschmidt (Berlin).
53 *Indikationen der Roentgen-Behandlung bei Haut-Erkrankungen (cutaneous affections). C. Bruhns.
54 (No. 7.) *Ueber afrikanischen Recurrens. Robert Koch.
55 Ueber Parasiten-Befunde in Blut-Präparaten eines Gelbfieberkranken (parasites in blood of yellow fever patient). M. Schuller (Berlin).
56 *Experimentelle Haut-Tuberkulose bei Affen (cutaneous tuberculosis in monkeys). G. Barmann and L. Halberstaedter.
57 Acute aufsteigende (Landry'sche) Paralyse nach Typhus abdominalis mit Ausgang in Heilung. A. Schutze.
58 Noch einmal zur Elnspritzungsbehandlung der Neuralgien (alcohol injections). F. Ostwalt (Paris).
59 *Zur Elntellung des Morbus Brightii. J. Vogel.

48. **Chronic Progressive Chorea in Youth.**—Lange gives the particulars of a case of Huntington's chorea in a young man whose father had suffered from the same affection. In the latter it commenced soon after a trauma when he was at the age of 48. It began in the youth soon after his two years of military service, during which he had been a constant butt of ridicule and abuse for his awkwardness.

51. **Physical Treatment of Habitual Constipation.**—Tobias describes in detail his technic for application of hydrotherapy, massage and exercises in the treatment of constipation. If due to atony of the bowels, he says, various forms of contrast hydrotherapy and food to stimulate the bowels are required. In the spastic form of constipation, all stimulating measures should be avoided. The best procedure is generally a cold wet pack once a day for thirty minutes, colder each day and the time lengthened to an hour or an hour and a half, concluding with a general douche of cold water under gentle pressure, or the douche may begin warm and be gradually cooled. In case of atony, treatment should be suspended frequently, in case of spastic constipation it should be pushed until benefit is apparent.

52. **Endoscopy of the Urethra.**—Goldschmidt distends the urethra with air or water, after which it is easy to inspect the interior with an apparatus devised on the same principle as the cystoscope. Slight distension is sufficient for the purpose.

53. **Roentgen Treatment of Cutaneous Affections.**—Bruhns expatiates on the great value of Roentgen treatment, the results far surpassing, he thinks, those of other methods, in the treatment especially of dry chronic eczema, chronic circumscribed neurodermitis, local pruritus, verrucous lichen ruber, favus, sycosis, chronic furunculosis of the back of the neck, acne keloid, psoriasis, hyperidrosis, multiple juvenile warts, fungoid mycosis, rhinoscleroma and, to some extent, in the treatment of cancer. In certain other affections, erythematous lupus for instance, good results from Roentgen treatment are sometimes but not so regularly observed. He affirms that the cautious use of the Roentgen rays under the present technics is so free from injurious effects that it should be used without hesitancy even in the milder cases of the above affections.

54. **African Relapsing Fever.**—Koch gives illustrations of the tick which serves as the intermediate host for the spirochete causing relapsing fever in Africa, also of the spirochete, and relates other results of his recent research work in the tropics. Quinin has no effect in relapsing fever, but trypan red seems to display a certain specific action on the trypanosoma and may prove useful in prophylaxis and treatment. The prospects of serum treatment also seem promising as the immunity conferred by one attack is so complete. He has learned the habits of the tick host, finding that it lurks under dry shelters. By pitching the tent in a new place every time on the caravan route, a little distance apart from the long built

shelters under which the ticks were numerous, his party avoided relapsing fever entirely, while 4 of the 5 non-immune persons accompanying them, who slept in the shelters, contracted the disease.

56. **Cutaneous Tuberculosis in Monkeys.**—The experimental research described was conducted in Batavia by individuals who had gone there to study syphilis in monkeys. The tuberculous cutaneous lesions differed completely from the lesions observed in monkeys inoculated with syphilis, resembling in many respects similar lesions in man. The effects of tuberculin treatment are briefly mentioned in this merely preliminary communication.

59. **Classification of Nephritis.**—Vogel commends Senator's classification of cases of nephritis. He distinguishes three forms, the acute, the chronic with and the chronic without induration. He distinguishes further in acute nephritis between the parenchymatous and the diffuse forms. Chronic nephritis with induration can be classified as the form with secondary induration (secondary contracted kidney), the primary indurative (chronic interstitial), and the form with arteriosclerotic induration.

Centralblatt f. Chirurgie, Leipsic.

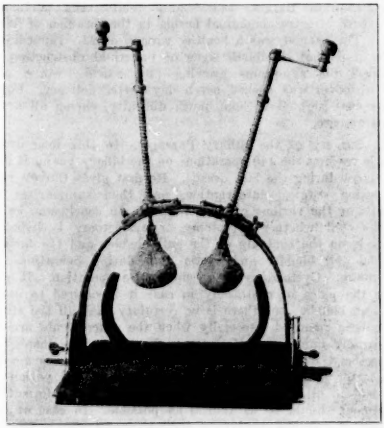
Last indexed, page 839.

60 (XXXIII, No. 7.) Zur Technik der Blinddarm-Operation (appendicectomy). J. Hahn. Id. H. v. Haberer.
61 Short Incisions for Laparotomies.—Kleine Bauchschnitte. A. Bier (Bonn).
62 Torsion of Omentum Tumor in Not Recognizable Hernia.—Der gedrehte Netztumor im nicht erkennbaren Bruche. Riedel (Jena).
63 *Die alimentare Therapie der nach Cholecystostomie auftretenden Gallen-Fistel. H. Gross.
64 (No. 8.) *Ueber Iod-Benzine-Disinfektion. Heusner (Barmen).
65 (No. 9.) Nasen-Rachen-Tumoren und perorale Tubage (tumors in nasopharynx and intubation through the mouth). F. Kuhn (Kassel).
66 *New Instrument to Obtain Urine from Kidneys Separately.—Ein neuer Separator für den Urin beider Nieren. Heusner (Barmen).

63. **Alimentary Treatment of Bile Fistula.**—Gross describes his experience with a patient who had a profuse flow of bile through a fistula resulting from a cholecystostomy. After several weeks of this loss of bile Gross checked it by instituting the "alimentary course of treatment" recommended by Jaboulay and Patel. They found that the flow of bile could be checked and the healing of a fistula promoted by preventing the accumulation of bile in the natural reservoir for it, the gall bladder. This they accomplished by not leaving a long interval between meals. The meals were given at three-hour intervals, the patient being waked to eat twice between midnight and dawn. Gross ordered his patient to eat every three hours, night and day, and in twenty-four hours the amount of bile escaping by the fistula had been reduced by one-half. By the end of the ninth day scarcely any secretion escaped through the fistula, and five days later the flow had entirely ceased and the fistula soon healed over. The immediate success in this case, after weeks of persistence of the flow of bile, was too striking to be merely a coincidence.

64. **Iodin-Benzin Disinfection of the Hands and Skin.**—Heusner describes a new method of disinfecting the hands and skin which he believes is destined to banish soap and water from surgical disinfection. He has been using it exclusively for the last six months, and the results have far surpassed those obtained with any other technic, while the saving in time, labor and expense would place this method above all others to date even if the results were only equal instead of being superior. A 1 per thousand solution of iodin in benzin is used in the place of the hot water, alcohol and sublimate disinfection. The cleansing and disinfecting properties of benzin render it an ideal substance for the purpose, he asserts, and the addition of the iodin enhances the disinfecting power. About 300 c.c. of the iodized benzin is poured into a basin, and the hands scrubbed with a brush for five minutes. (The patient's skin is scrubbed with a gauze sponge). The hands are then rinsed in a fresh basin of the iodized benzin and wiped dry with gauze sponges, and then rubbed over with 2 per thousand iodized vaselin. When the surface to be disinfected is very sensitive, as around the genitals, 50 per cent. paraffin oil is added to the iodized benzin. It blends perfectly with it and prevents all possible irritation. The only drawback from this method of disinfection is the inflammability of the benzin, but precautions can be taken accordingly. The very slight brownish stain left on the hands soon vanishes. In spite of its high bactericidal power iodin is much less toxic than sublimate. It dissolves better in benzin, paraffin oil and vaselin than in water. The hands can be wiped off from time to time with the iodized benzin during the operation, the small amount left clinging to the hands not affecting the field of operation, which can even be wiped off with the benzin after the suture is finished.

66. **New Separator for Urine.**—Heusner's simple contrivance insures the segregation of the urine from each kidney by pressure from without on the ureters in turn. Both Nicolich and Bier have called attention to the fact that it is possible to interrupt the flow through the ureter by compressing it. The point where compression is most effectual is in the niche at the side of the fifth lumbar vertebra, where the ureter passes over the hill formed by the iliacus muscle. The patient lies on a flat standard (see illustration) which has two curved, adjustable arms to hold the trunk firm. A metal arch above carries two large pads, corresponding to each ureter, mounted on a long slanting stem with a screw thread and crank handle. This allows the pads to be screwed down on the trunk with



great pressure. The center of each pad corresponds to a point two finger-breadths above the umbilicus, their inner edge a finger-breadth from the median line. One pad is screwed down to compress one ureter and the urine secreted during a given time is collected through a catheter in a graduated vessel. The test is then applied to the other kidney. The compression is not removed from the first ureter until the cessation of all flow of urine through the catheter shows that the closure of both ureters is complete. The first pad is then raised. The findings coincide with those of other tests. Heusner has never observed any inconveniences from this test except a transient tenderness and elimination of a little blood when a diseased ureter was compressed too hard and too long.

Centralblatt f. Gynäkologie, Leipsic.

Last indexed, page 839.

67 (XXX, No. 7.) *Ueber Garrulitas vulvæ. J. Veit (Halle).
68 *Ein verbessertes sich selbst haltendes Bauch-Spekulum (self-holding retractor). Stoeckel (Berlin).
69 *Operativ Korrektur von Deviationen des Uterus durch "verkurzende Plastik der Ligg. rotunda per laparotomiam" (fibro-fibröse indirekte Fixierung). M. Sperling (Königsberg).
70 Fall von Fibroma ovarii. C. Blindfleisch.
71 *Zeit des Eintritts der ersten Menstruation nach einem Abort. B. Engländer (Warsaw).
72 (No. 8.) *Einiges über die Pubiotomie (Hebotomie). M. Henkel. Id. Kroemer. Id. L. Seeligmann. Id. F. Jessen (Davos). Id. Kannegiesser.
73 (No. 9.) *Fall von leukämischen Verblutungstod bei einer Schwangeren (fatal leukemic hemorrhages in pregnancy). Bostetter.

74 *Die graphische Methode in der Gynäkologie und ihre Anwendung zur Bekämpfung des Gebärmutterkrebses (application in war against cancer). R. de Seigneux (Geneva).
75 *Zur Wirkung der Radium-Strahlen auf inoperable Karzinome. Schücking (Pyrmont).
76 Aus der geburtshilflichen Praxis (3 unusual obstetric cases). J. Goldensteln.

67. **Garrulitas Vulvae.**—Veit found in one case in which a woman complained of rumbling in the vulva that a gas-generating microbe was present in the vagina. He, therefore, tamponed the vagina with glycerinated gauze which destroyed the microbes and soon freed the patient from the annoyance of which she complained. In 3 other cases he applied the glycerin tampons without taking the trouble to make a bacteriologic examination, and the prompt cure confirmed the correctness of his diagnosis.

68. **Self-Holding Speculum.**—Stoeckel invented four years ago a broad retractor to fit over the lower part of the abdominal incision and to be held in place by a cord and a weight below the level of the table. It is in use in several German clinics, and has proved very satisfactory. He now presents an improved form of this retractor which, as shown in an illustration, has two additional retractors attached, for the sides of the incision, at right angles to the first retractor. They are carried by two crossbars on the handle of the first retractor, and can be spread and fastened at any width desired, the whole thus automatically holding the lower part of the wound wide open.

69. **Shortening Ligament to Correct Displacement of Uterus.**—Sperling isolates the round ligament from its peritoneal envelope, working through a laparotomy incision. He then takes up a loop in the round ligament and another in the peritoneal cover and sutures the two together, leaving the ends of the thread projecting at the top of the loops. These projecting ends from the loops on each side are then tied together in the median line over the anterior surface of the uterus, to which they are then fastened with two or three small stitches. Before opening the abdomen he introduces a return-flow catheter into the uterus and pushes it into a slightly anteflexed position, holding it in this position with a tampon in the vagina. He then proceeds to the laparotomy. After the incision is made an assistant takes hold of the catheter and pushes the fundus of the uterus up into the opening, where it is grasped with dressing forceps. The catheter is then withdrawn. He first described this "fibro-fibrous indirect fixation" in 1904, and time has confirmed its advantages. The technic here advocated is much simpler than that originally proposed, and he regards it as a great improvement. He uses silk exclusively for the sutures, and the entire operation does not require more than twenty or forty minutes. He describes his technic in detail and states that it is applicable to all cases except possibly those in which the retroflexed uterus is certainly absolutely movable, when low vaginal fixation or the Alexander-Adam operation might be preferable. Prolapse with movable retroflexion in women approaching or past the menopause he treats with high vaginofixation.

71. **First Menstruation After Abortion.**—Engländer found that menstruation recurred after four weeks in 64.9 per cent. of 57 women who had aborted in the first four months of pregnancy; at the fifth week in 14 or 24.5 per cent.; at the sixth week in 6 or 10 per cent., and in one case at the third week. It seems evident that the female organism reacts to an uncomplicated early abortion as to an ordinary menstruation. The interval before the following menstruation is lengthened by complications. If the abortion causes hemorrhage for a few days only, and the hemorrhage recurs in four weeks, it may be regarded as an ordinary menstruation. But if bleeding recurs irregularly at short intervals, it may be assumed that it is due to retention of relics of the abortion.

72. **Pubiotomy.**—Henkel writes from Olshausen's clinic to emphasize the importance of the indications for pubiotomy (extramedian symphyseotomy). It is such a simple and easily performed operation that it has been hailed as destined to banish craniotomy, prophylactic version, etc. He protests against this exaggeratedly optimistic opinion. Within the limits of its indications it is proving more and more valuable, but it should not be applied when the true conjugate diameter is 6.75 cm. or less with a flat pelvis, or 7.5 cm. with a generally contracted pelvis. If a woman with abnormally small pelvis has been in labor for a long time and has temperature, he would advise perforation of the living child, even in case of a primipara, rather than sawing the os pubis. An eclamptic primipara with contracted pelvis is not a proper candidate for pubiotomy, generally speaking, on account of the danger of injury of the soft parts. It is not an operation that can be done safely by the general practitioner, as serious complications, severe hemorrhage, etc., have occurred in the hands of even experienced operators. In conclusion, he reports a case which shows the value of the operation in certain conditions. The patient was a multipara with contracted pelvis, in whom the true conjugate diameter was from 7.75 to 8 cm., and whose previous pregnancies had been terminated by perforation of the fetus or abortion. The present pregnancy was complicated with placenta prævia centralis. The woman was safely delivered of a living child without abnormal hemorrhage by sawing the os pubis and then extracting the child by vaginal Cesarean section. The entire intervention, including the suture of the uterus, was completed in thirteen minutes.

Kroemer describes experiences which demonstrate that pubiotomy and artificial premature delivery do not exclude but mutually supplement each other. He discusses the preferable technic, as also Seeligmann, while Jessen reports a case in which the Gigli saw broke during the operation. Unable to complete it, he finished with a symphyseotomy. The hemorrhage when the point of the saw emerged near the labium major was so severe that it could only be controlled by suture. There was no hemorrhage from the symphyseotomy. The pelvis became enlarged to an extent of 6 cm. and the child was easily extracted with forceps without any force being used. As the head emerged the vagina tore at the part corresponding to the pubiotomy wound. The cervix was also lacerated at a corresponding point. The patient was a multipara with conjugate diameter of 8.5 in a flat rachitic pelvis. Recovery proceeded without complications, but the sawed part of the bone was still tender, without callus formation, when all else had healed. The saw broke in another case on record. Kannegiesser has been invariably successful in 18 cases with pubiotomy, and ascribes his success to his subcutaneous technic. He inserts a needle from above and works it down along the posterior surface of the os pubis and out through the skin outside of the labium major. The Gigli saw is then taken up by the needle and, as the latter is drawn back, the saw is drawn into place ready for the sawing. He is careful to pull the skin to one side so that the wound in the skin will not be over that in the bone. He also refrains from touching the skin wound with the fingers, and closes it with collodion as soon as possible.

73. **Leukemic Hemorrhages During Pregnancy.**—A previously healthy primipara of 23 came to the clinic at the seventh month of pregnancy on account of hemorrhages. A physician had been treating her for a week for an abscess in the tonsil. The next day the patient became uneasy and complained of dyspnea. The pulse was 120, soft, and the temperature rose suddenly. The patient succumbed the same evening with symptoms of heart failure. The tonsils were found gangrenous in the center, the spleen was enlarged, and a large quantity of blood was found in the stomach and intestines, while other organs had a hemorrhagic aspect. Microscopic examination revealed the findings characteristic of leukemia. No one had thought of examining the blood during life.

74. **Graphic Records in Gynecology and Prophylaxis of Cancer.**—De Seigneux gives his gynecologic patients a little chart on which to record the particulars in regard to menstruation, pains and leucorrhea. These three factors form the syndrome common to all affections of the internal genitals in women. The syndrome differs only as one or two of the factors are more predominant, but this very predominance is of the utmost importance for differentiation of the affection in question. The little chart is easily kept posted to date and presents a bird's-eye view of the entire gynecologic conditions for the year. It is merely a strip of paper about 2 inches wide

by 15 long, which is marked off in squares somewhat finer than those of a temperature chart. Each row of squares represents a day, and each period of five days is marked off with a heavier perpendicular line, and each month with a still heavier one, the chart being calculated for a year. Under the name of each month are the dates over the heavy lines, 5, 10, 15, 20, 25, 30. Four heavy horizontal lines cross the chart, numbered at each end ½, 1, 2 and 3. The strip folds up into a small compass. The patient is instructed to mark with a pencil the squares corresponding to the date whenever she notes hemorrhage from the genitals, marking the top square on this date along the horizontal line numbered 1, if the hemorrhage is about that of ordinary menstruation, or only on the line numbered ½ if less than this. In case of pain an *x* is placed below the row of squares for the date, underlined if severe, and doubly or trebly underlined if unbearable. When the pain keeps up for several days a line can be drawn to connect the dates with the *x* below. A glance at the chart shows the regularity or irregularity of the menses, the exact duration of each period, the intervals between, the character of the hemorrhage, and of all other atypical hemorrhages with their duration, amount and frequency. Also whether the menstruation is accompanied by pain or not, the days on which the pain appeared, and whether it occurred outside of the menstrual periods, and whether moderate or severe. Periods of leucorrhea are designated by a horizontal line drawn above the chart, over the dates. A calendar chart of this kind enables the physician to detect trouble in its incipiency and to get on the trail of the cancer of the genital regions when it first starts, and without frightening the patient. Women should be told to present these charts to the family physician or specialist every six months, and after the thirty-fifth or fortieth year, every three months. If medical students were taught to give out such charts to their patients and to train the latter to bring them for inspection at stated intervals, most important progress would be made in the war against uterine cancer. The day is coming, he thinks, when every well-informed woman will have some such chart and will make a point of going to her physician at regular intervals, as she now goes to her dentist, to have him examine her and see whether or not she is in good health.

75. **Radium Treatment of Inoperable Cancer.**—Schücking had only 3 mg. of radium at his disposal. He kept it in two capsules and applied them to an inoperable cancer of the uterus in a woman of 56. The growth filled the entire upper part of the vagina with a hard mass, extending into the pelvis, and was necrotic in parts. He applied the capsules for five weeks, changing their position frequently, holding them in place with gauze. The entire surface of the cancer was destroyed to a depth of several centimeters and around the edges down to sound tissue. The purulent necrosis entirely ceased, and healthy granulations developed, followed by healing over with scar tissue. The result was far better than could possibly have been obtained with the actual cautery or the curette.

Deutsche medizinische Wochenschrift, Berlin and Leipsic.

77 (XXXII, No. 5.) *Are Artificial Stimulants Required? Bedarf der menschliche Organismus künstlicher Reizmittel? Zunker (Berlin).

78 *Vaginal Cesarean Section and the "Surgical Era" in Obstetrics. —Der vag. Kaiserschnitt und die chir. Era in der Geburtshilfe. M. Hofmeier.

79 Suppuration Around Hypophysis, etc., in Epidemic Cerebrospinal Meningitis.—Ueber perihypophyseale Eiterung und einige andere bemerkenswerte Befunde bei Genickstarre. M. Westenhoeffer.

80 *Ueber eine neue Funktions-Prüfung des Magen-Chemismus während der Verdauungstätigkeit ohne Anwendung der Schlundsonde (Sahlische Desmoid Reaktion).—Test of Chemistry of Stomach. F. Kaliski.

81 Ueber Pyrodin-Vergiftung bei Hunden (experimental anemia in dogs). M. Mosse. See mention on page 920.

82 Akute Struma als Folge von Seekrankheit (result of seasickness). A. Rosenfeld.

83 (No. 6.) *Ueber die häufige Kombination von Pulsus irregularis perpetuus mit Kammervenen-Puls (ventricle-vein pulse). H. E. Hering (Prague).

84 Der Desinfektions-Wert von Lysoform bei mässig erhöhter Temperatur (heating enhances disinfecting power). H. Schneider.

85 *Passive Congestion in Treatment of Acute Suppuration in Ear, etc.—Die Bier'sche Stauung bei akuten Ohreiterungen. Ein neues Operationsverfahren bei Fällen akuter Mastoiditis. Stenger.

86 Experimenteller Beitrag zur Kritik der Siegelschen Syphilis-Uebertragungs-Versuche auf Tiere (transmission of syphilis to animals). Wechselmann.

87 *Fate of Foreign Chemical Substances in Body and their Elimination.—Das Schicksal körperfremder chemischer Stoffe im Menschen und bes. ihre Ausscheidung. L. Lewin. (Concluded.)

88 Ueber die bacilläre Dysenterie im Stadtkreis Barmen (1904-1905). H. Lüdke. (Concluded.)

77. **Does the Human Organism Require Artificial Stimulants?**—Zunker's short article, presenting affirmative views, is headed with the editorial note that reproduction of the article, even in an abbreviated form, is forbidden.

78. **The Surgical Era in Obstetrics.**—Hofmeier protests against the prevailing tendency to perform operations on the mother for the sake of the child. He remarks that the advocates of these surgical methods in obstetrics would soon think differently if it were possible for them to experience on their own body the consequences of such procedures. These may be required in eclampsia, but he does not recognize placenta prævia nor prolapse of the cord as indications for operative measures.

80. **Recommendation of Sahli Desmoid Test of Stomach Functioning.**—Kaliski joins in the chorus of commendation of this test of some of the gastric functions. (See abstract on page 760). His experiences with patients and controls suggest that the test can be used for finer differentiation than hitherto supposed. When the urine shows the effect of the stain in from four to seven hours, hyperacidity may be assumed. When the stain does not become apparent until after seven and up to twelve hours normal acidity may be assumed. Subacidity or motor insufficiency is indicated when the urine does not become tinted until the second day. He is still testing the desmoid reaction, preceding it with a test meal consisting of 200 gm. soup with the yolk of egg and white bread, 200 gm. calf's brains or sweetbread or fish, 200 gm. cauliflower, 150 gm. mashed potato, and 150 gm. preserved cherries.

83. **Combination of Positive Venous Pulse with Irregular Pulse.**—Hering expresses surprise that greater attention is not paid to the jugular pulse, whose curve is the only objective and certain clinical sign of tricuspid insufficiency. He has sometimes encountered it accompanied by regular heart action, at least occasionally regular. But he has never observed a permanently irregular pulse without the positive venous pulse (Kammervenenpuls—"ventricle-vein pulse"). In anemics, on the other hand, he never encountered the "ventricle-vein" pulse, but rather an "auricle-vein" pulse.

85. **Passive Congestion in Acute Mastoiditis.**—Stenger has been applying Bier's technic for artificial hyperemia in 11 cases of acute suppurative affections of the ear without, and in 7 with complications. His results were so good that he is inclined to believe that the Bier technic is destined to work a revolution in the treatment of acute mastoiditis, and other suppurative ear affections. He makes an incision for mastoiditis about 2 or 3 cm. long, loosens the periosteum and ligates the bleeding vessels. If no fistula is found he makes a small opening into the antrum and works a strip of gauze into this hole. The Bier aspirating jar is placed over the region and suction applied. The jar generally soon fills up with blood, pus and serous fluid and the soft parts swell, but there is no pain. The aspirating jar is held in place with a bandage. It is removed in about three hours unless filled before. It is applied again the next day after a new strip of gauze has been placed in the fistula. The jar is left in place for an hour or two each day until the secretion has entirely ceased and healthy granulations appeared.

87. **The Fate of Foreign Chemical Substances in the Body.**—Lewin discusses the elimination of foreign chemical substances by way of the various emunctories. He calls attention among other points to the intermittent way in which elimination is liable to occur, especially through the glands. This intermittent action is not sufficiently regarded in experimental research. He remarks in conclusion that for thousands of years physicians have striven to aid Nature by promoting the elimination of foreign chemical substances, but modern science is

neglecting this important branch of therapeutics. Better results would be attained, he states, if instead of devoting so much energy to the discovery of specific remedies and antitoxins, more attention were paid to stimulating the eliminating organs to energetic action on a more extensive scale by appropriate, individualized measures to this end.

Münchener med. Wochenschrift, Munich.

89 (LIII, No. 2.) Difficulties in Removing Tracheal Tube.—Ueber das erschwerte Decanulement. V. Schmieden.
90 *Passive Congestion for Eye Affections.—Ueber Bierscher Stauungs-Hyperämie bei Augenkrankheiten. Renner (Munich).
91 *Weitere Untersuchungen über die Aetiologie der Syphilis. J. Siegel (University Institute of Zoology, Berlin).
92 Hypersusceptibility and Accelerated Reaction.—Ueberempfindlichkeit und beschleunigte Reaktion. C. v. Pirquet and B. Schick (Vienna).
93 *Nachweis von Typhus-Bakterien in eingesandten Blutproben (in samples of blood). R. Müller and H. Graf.
94 *Ueber Beeinflussung von Blutkrankheiten durch das Erysipel (influence on affections of the blood). E. Stadler.
95 X-Rays in Diagnosis of Esophagus Affections.—Ueber die diagnostische Verwertung der Roentgen-Strahlen und den Gebrauch der Quecksilbersonde bei Speiseröhrenerkrankungen. A. Cahn.
96 Zur Behandlung des Speiseröhren-Divertikels (of esophagus). Lotheissen.
97 Weitere Erfahrungen mit der Zyklo-Dialyse auf Grund von 56 Operationen (to establish communication between anterior chamber and suprachoroid space). Heine (Breslau).
98 Zur Methodik der Plattfuss-Diagnose (of flat foot). Schumann.
99 Zur Verhütung des Puerperal-Fiebers (prevention). Saradeth.
100 Urinal for Boys.—Urinfänger für Kindern. H. Finkelstein (Berlin).

90. Passive Congestion for Eye Affections—Renner applied Bier's constricting band to his own neck to study the effect on his eyes. The increased blood pressure in the veins of the head and consequently of the eyes which he experienced, he believes, might possibly be dangerous for elderly persons, and in his therapeutic application of the measure he excluded all patients over the age of 40. The improvement in 5 cases of parenchymatous keratitis was so striking that he is convinced that this treatment has a future in this affection. The band was applied for six or twelve hours a day for two or four weeks. No favorable results were noticed in eczematous phlyctenular and catarrhal ulcers of the cornea nor in cases of old opacity, but serpiginous ulcers of the cornea yielded more readily to treatment when the passive congestion was added to the usual measures. No inconveniences were observed in any case.

91. Cytorrhyctes Luis as Agent of Syphilis.—Siegel gives the particulars of the *Cytorrhyctes luis* in this profusely illustrated article, with the results of experimental inoculation of monkeys. He has modified the staining technic, and announces that an old, "well-ripened" solution of 1 part methylene blue with 2.5 parts borax and 100 parts distilled water gives clear, well-defined views of the parasites after ten minutes' contact with the sections, followed by simple rinsing under a strong stream of water. This stains the red corpuscles well, but leaves the blood plasm colorless, so that the parasites in the latter stand out distinctly. It is not necessary to waste time on sections of the organs, as the parasites show up equally well in blood, which is much more convenient for examination. He found the parasites constantly in the blood at the time of the exanthem in 20 syphilitics examined. The parasites vanished from the blood by the third week of inunction treatment. He succeeded in inoculating rabbits with syphilis, and the results resembled the picture of inherited syphilis in man. Inoculations of 30 white mice all resulted positively, the cytorrhyctes being found in the blood in all. The monkeys inoculated are still living and presenting new manifestations of the disease (eight months), so that the pathologic findings are not yet known. The three special characteristics of the parasite are its shininess, the distinct fission of the nuclei and the lighter colored edge, with flagella formation under favorable circumstances.

93. Determination of Bacteria in Samples of Blood.—Müller and Graf describe the simple technic followed at the Kiel Institute to determine the presence of typhoid or other bacteria in samples of blood sent in by physicians in dubious cases of typhoid.

94. Influence of Erysipelas on Blood Diseases.—The patient in the case described by Stadler was a woman in an advanced stage of pernicious anemia. She was a housemaid of 29 and the symptoms had attracted attention for about a month, growing rapidly worse until she lay in deep coma for five days, apparently moribund. Erysipelas then developed, spreading from the nostril over the face. By the second day the patient had regained consciousness, and her condition rapidly improved. In less than a week the erysipelas had run its course, but the improvement continued and complete health was rapidly regained. When first seen the reds numbered 792,000, with about 40 nucleated reds; the whites 2,600, and the hemoglobin was reduced to 20 per cent. Eighteen days later, the fourth day of the erysipelas, there were 3,000 of the nucleated reds, a total of 632,000 reds, 6,000 whites and 20 per cent. hemoglobin. Ten days later there were 2,288,000 reds, 60 nucleated reds, 4,000 whites, and 45 per cent. hemoglobin. The latter rose to 80 per cent. in the course of the following month. Stadler reviews a number of cases that have been published in which an intercurrent erysipelas was apparently responsible for the cure of the primary disease. Nyrop has reported a case of severe parenchymatous nephritis of four months' duration, and another of nine months, both taking an abrupt turn for the better with an intercurrent erysipelas.

Riforma Medica, Naples.

Last indexed, page 997.

101 (XXI, No. 41.) *Cura delle adeniti inguinali da ulcera venerea. G. Migliorini.
102 Chirurgia delle vie biliari. N. Giannettasio.
103 (No. 42.) *Negri Bodies in Rabies.—I corpi del Negri e l'infezione rabida da virus fisso a lento decorso. A. Bongiovanni.
104 La simbiosi sifilido-tubercolare del naso (of nose). L. Leto.
105 (No. 43.) *Osservazioni e ricerche batteriologiche sopra alcuni casi d'infezione tifoide con speciale riguardo alla dimostrazione degli anticorpi immunizzanti nel siero di sangue (antibodies in typhoid). A. Rossi.
106 *Una nuova Ipotesi della patogenesi dell' ulcera semplice dello stomaco. N. Palermo.
107 (No. 44.) *Tumore mixosarcomatoso della capsula surrenale destra (of right suprarenal). F. Sicuriani.
108 (No. 45.) Cura chirurgica dell'appendicite. O. Vignolo.
109 *Di una speciale adenite nella appendicite. N. Berardinone.
110 *Remote Results of Some Craniectomies for Fracture.—Alcune craniectomie per frattura e loro esiti lontani. E. Vicenzoni.
111 (No. 46.) *Action of Substances Injected under the Dura.—Azione di alcune sostanze iniettate sotto la dura madre cerebrale. G. Nardelli.
112 (No. 47.) Caso di chiluria. G. Vincenzo.
113 Caso di varici alle regioni crurali. G. Turazza.
114 *Il segno della posizione nell'angina pectoris (attitude sign). L. Minervini. (Commenced in No. 46.)

101. Treatment of Venereal Bubo.—Migliorini compares the results in 57 cases under different methods of treatment. The results of evacuation and injection of a solution of nitrate of silver were much superior to those of other technics.

103. Negri Bodies in Rabies.—Bongiovanni states that the Negri endocellular bodies were constantly encountered in his researches on animals infected with "street virus." This constant finding has convinced him that these bodies are undoubtedly connected with the disease in some way. At the same time, he adds, he was never able to find the Negri bodies in his experimental work on rabbits infected with "fixed virus," even when the disease ran a very protracted course. This absence of the bodies in infection from fixed virus should be taken into account in experiments with radium or other methods of treating rabies.

105. Antibodies in Typhoid.—Rossi has been studying the immunizing antibodies in the serum of 8 typhoid fever patients. He was unable to detect any close connection between the agglutinins and the antibodies.

106. Pathogenesis of Gastric Ulcer.—Palermo analyzes the various hypotheses that have been advanced to explain the origin of gastric ulcer, and then proposes a new one. He suggests that when a solution of continuity occurs in a part of the stomach wall which is free from glandular formations, the lining epithelium is unable alone to accomplish the regeneration of the lesion, owing to the lack of glandular elements to co-operate in the work. The corroding action of the gastric juice soon induces ulceration at the point of the lesion.

107. Myxosarcoma of Suprarenal Capsule.—The patient was a man of 50, and the tumor weighed about seven pounds when removed. There was no cachexia, mononuclear leucocytosis or other symptom pointing to the suprarenals. The sound suprarenal must have acted vicariously for the affected organ. A tuberculous lesion is more apt to induce the Addisonian syndrome than a tumor. The patient had regained his health satisfactorily when last seen, two months after the two-hour operation.

109. Adenitis in Appendicitis.—Berardinone remarks that he has never seen any mention in the literature of the enlargement of one of the inguinal glands which he has found almost constantly accompanying appendicitis.

110. Remote Results of Craniectomy.—Vicenzoni reports in detail 7 cases of fracture of the skull treated with craniectomy. He also reviews the experiences of others in this line. In all his cases the results were very good. The wound healed over by growth of new fibrous tissue, and all disturbances vanished in every case but one. He saved the scraps of bone taken out, keeping them in a 2 per cent. aqueous solution of carbolic acid, and was able to replace them in the defect, where they soon healed in place. In one patient he was able in this way to repair the entire breach.

111. Action of Substances Injected Under the Dura.—Nardelli experimented with hypnotics and depressant and convulsive drugs, injecting them under the dura in dogs. Among the results observed he mentions that the persisting convulsions were of a type that did not materially affect the respiratory functions. The action of the drug injected under the cerebral dura did not seem to extend to the cerebellum. The dogs seemed to change their character after the injections, becoming aggressive, like the dogs operated on by Goltz, when the intervention was restricted to the anterior hemisphere. When the operation was confined to the posterior hemisphere the dogs became more docile and quiet. Among the drugs Nardelli injected were the salts of calcium. Calcium lactate displayed a lasting depressant action, even in very small doses, which did not interfere with the health of the animal. The facts observed suggest that endodural injections of the calcium salts might prove useful in severe cases of epilepsy.

114. Attitude in Angina Pectoris.—Minervini gives illustrations of the attitude assumed by a person during an attack of angina pectoris. He also describes 9 cases, all showing the constancy of this attitude sign, as he calls it. The individual straightens up and bends his head over backward, the arms hang down or one may be placed over the heart region. If standing, he leans over back against a wall, if possible; if seated, he leans his head over the back of the chair; if in bed, the attempt to assume this attitude is plainly apparent, and he also twists his body over to the right. The aim seems to be to get away from the heart. In asthma and similar conditions, on the other hand, the patient leans forward, seeking air, rushing to a door or window if possible.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

A TEXT-BOOK ON PLAGUE. by Dr. Tohiu Ishigami, superintendent Bacteriological Institute, Osaka, Japan, formerly Assistant Bacteriologist to Prof. Kitasato. Revised by Prof. Shibasaburo Kitasato, Tokyo, Japan. Translated, Enlarged and Illustrated with Pathogenic Literature. By D. Macdonald, M.B.C.M. With One Hundred and Fifty-two Illustrations and Three Chromo-Lithographic Plates. In two Parts. Cloth. Pp. 180. Price, 22s. 6d. Adelaide: Vardon & Pritchard, Printers, 1905.

DISEASES OF THE EYE. A Handbook of Ophthalmic Practice for Students and Practitioners. By G. E. de Schweinitz, A.M., M.D., Professor of Ophthalmology in the University of Pennsylvania and Ophthalmic Surgeon to the University Hospital. With 313 Illustrations and 6 chromo-lithographic plates. Fifth edition, thoroughly revised. Cloth. Pp. 894. Price, $5.00 net. Philadelphia: W. B. Saunders Co., 1906.

A TEXT-BOOK ON THE PRACTICE OF GYNECOLOGY. For Practitioners and Students. By. W. E. Ashton, M.D., LL.D., Fellow of the American Gynecological Society, Professor of Gynecology in the Medico-Chirurgical College, etc., with 1,046 New Line Drawings Illustrating the Text. By J. V. Altenader. Second edition. Cloth. Pp. 1079. Price, $6.50 net. Philadelphia: W. B. Saunders Co., 1906.

MEDICAL DISEASES OF INFANCY AND CHILDHOOD, with Points on the Anatomy, Physiology and Hygiene Peculiar to the Developing Period. By A. C. Cotton, A.M., M.D., Professor of Pediatrics, Rush Medical College, University of Chicago; Attending Physician for Diseases of Children Presbyterian Hospital, etc. Cloth. Pp. 670. Price, $3.50. Philadelphia: J. B. Lippincott Co., 1906.

THE AUTOMOBILE. A Practical Treatise on the Construction of Modern Motor Cars, Steam, Petrol, Electric and Petrol-Electric. Based on Lavergne's "L'Automobile sur Route." Edited by P. N. Hasluck. Special Edition Enlarged, with 804 Illustrations, 8 Full-page Plates and an Addendum. Vols. I and II. Cloth. Pp. 451-864. Price, $7.00 net. Chicago: W. T. Keener & Co.

ESSENTIALS OF GENITO-URINARY AND VENEREAL DISEASES Arranged in the Form of Questions and Answers, Prepared Especially for Students of Medicine. By S. S. Wilcox, M.D., Professor of Genito-Urinary Diseases and Syphilology, Starling Medical College, Columbus, etc. Illustrated. Cloth. Pp. 313. Price, $1.00 net. Philadelphia: W. B. Saunders Co., 1906.

INFECTION, IMMUNITY AND SERUM THERAPY. In Relation to the Infectious Diseases which Attack Man; with Considerations of the Allied Subjects of Agglutination, Precipitation, Hemolysis, etc. By H. T. Ricketts, M.D., Instructor in Pathology, University of Chicago. Cloth. Pp. 600. Illustrated. Price, $2.50. Chicago: American Medical Association Press, 1906.

A TEXT-BOOK OF MATERIA MEDICA, THERAPEUTICS AND PHARMACOLOGY. By G. F. Butler, Ph.G., M.D., Associate Professor of Therapeutics, College of Physicians and Surgeons, Chicago, etc. Fifth Edition. Thoroughly Revised and Rewritten. By S. E. Jelliffe, M.D., Ph.D. Cloth. Pp. 694. Price, $4.00 net. Philadelphia: W. B. Saunders Co., 1906.

REFERENCE HANDBOOK OF THE DISEASES OF CHILDREN. For Students and Physicians. By Prof. Ferdinand Fruhwald, Chief of Clinic in the Vienna Polyclinic. Edited, with Additions, By T. S. Westcott, M.D. With 176 Illustrations. Cloth. Pp. 533. Price, $4.50 net. Philadelphia: W. B. Saunders Co., 1906.

NURSING, Its Principles and Practice, for Hospital and Private Use. By I. H. Robb, Graduate of the New York Training School for Nurses attached to Bellevue Hospital, etc. Third edition, Revised and Enlarged. Illustrated. Cloth. Pp. 565. Price, $1.50. Cleveland: E. C. Koeckert, Publisher, 1906.

A TREATISE ON SURGERY. By G. R. Fowler, M.D., Examiner in Surgery, Board of Medical Examiners of the Regents of the University of the State of New York, etc. 888 Illlustrations and 4 Colored Plates, all original. Cloth. Pp. 722. Price, $15.00 net. Philadelphia: W. B. Saunders Co., 1906.

NURSING IN THE ACUTE INFECTIOUS FEVERS. By G. P. Paul, M.D., Assistant Visiting Physician and Adjunct Radiographer to the Samaritan Hospital at Troy, New York. Illustrated. Cloth. Pp. 200. Price, $1.00 net. Philadelphia: W. B. Saunders Co., 1906.

THIRTY-SECOND ANNUAL REPORT of the Board of Trustees and Officers of the Athens State Hospital to the Governor of the State of Ohio for the Fiscal Year Ending Nov. 15, 1905. Paper. Pp. 59. Columbus, Ohio: F. J. Herr, State Printer, 1906.

GYNECOLOGICAL DIAGNOSIS. A Manual for Students and Practitioners. By A. E. Giles, M.D., B.Sc., F.R.C.S., M.R.C.P., with 35 Original Illustrations. Cloth. Pp. 212. Price, $2.50 net. New York: William Wood & Co.

THE OPERATING ROOM AND THE PATIENT. By R. S. Fowler, M.D., surgeon to the German Hospital, Brooklyn, New York. Fully illustrated. Cloth. Pp. 172. Price, $2.00 net. Philadelphia: W. B. Saunders Co., 1906.

TREATMENT OF GONORRHEA IN THE MALE. By C. Leedham-Green, M.B., F.R.C.S., Senior Surgeon to Out-Patients, Queen's Hospital, Birmingham, etc. Cloth. Pp. 151. Price, $2.00 net. New York: William Wood & Co.

NEW PATENTS.

Recent patents of interest to physicians and pharmacists:

812974. Apparatus for sterilizing and cleansing bottles. T. C. Bates, Worcester, Mass.
813344. Inhaler. Charles S. Birt, Birmingham, England.
813363. Formaldehyd-generator. Albert E. Dieterich, Washington, D. C.
813373. Extracting albumin from vegetable substances. F. W. Gaertner, Niagara Falls, N. Y.
813092. Therapeutic pad. Periam B. Hardy, Tecumseh, Mich.
813221. Catamenial sack. W. M. Longstreth, Terra Alta, W. Va.
812883. Door-operated air pump for atomizers. W. H. Rose, Baltimore, Md.
813176. Self-adjusting belt for supporting catamenial bandages. Eugene Schick, Fly Mountain, N. Y.
813256. Pipette. Shin-Ichi Takaki. New York.
813877. Instrument for removing ribs. A. W. Frentzen and J. Shoemaker, Leiden, Netherlands.
813425. Inhaler and exhaler. J. L. Hill, Jackson, Mich.
813829. Suppository. Heber Robarts, St. Louis.
813740. Artificial limb. James F. Rowley, Chicago.
814594. Preserving and precipitating casein. H. V. Dunham, Bellows Falls, Vt.
814038. Medical applicator. Hans H. Groth, Cincinnati.
814286. Hospital or invalids' bed. W. J. Harris, Knoxbiro, N. Y.
814543. Hypodermic syringe. J. W. Horner, Columbus, Ind.
814484. Inhaling apparatus. Asger Yelschow, Oakland, Cal.
814181. Artificial breast. Laura J. Wolfe, Columbus, Ohio.
815264. Suture bridge. Joseph E. Chambers, St. Louis.
814720. Emulsifier. Charles D. Monroe, Elgin, Ill.
814795. Elastic bandage. Henry Myers, Philadelphia.
814923. Stethoscope. Otto Stadtler, Gehrden, Germany.
815313. Portable sterilizing apparatus. W. W. Sweeney, Los Angeles, Cal.
814820. Atomizer. W. H. Wood, Cleveland, Ohio.